University of Alberta

Indigenous knowledge engagement: How indigenous knowledge can be used to increase instances of sustainable development in sub-Saharan Africa

by

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Dedication

This work is dedicated to my daughter, Keltie Jane, who makes every day better.

Abstract

Historically, development projects in sub-Saharan Africa have failed to meet the needs of people throughout the region and have proven unsustainable in most instances. This study looks at the opportunities for positive sustainable development in sub-Saharan Africa when indigenous knowledge is included and indigenous people are engaged in the development process. A key solution to resolving poverty and mal-development in the sub-Saharan region is to include indigenous knowledges, skills and understandings of local and regional realities in development process.

To illustrate the benefits available when indigenous knowledge is honored and included in the development process, examples of projects incorporating indigenous knowledge have been explored. Utilizing the Millennium Development Goals as a framework, this study demonstrates the far-reaching benefits of indigenous knowledge engagement across a range of developmental sectors.

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Chapter 1 - Introduction

Statement of the Problem

Current development policies and programs have failed the people of sub-Saharan Africa. Despite worldwide advances in communication, transportation, health care and technology, millions of people who live in sub-Saharan Africa continue to suffer the deprivation and degradation of extreme poverty. Despite the theories of experts from the developed world on how to restore economic viability to sub-Saharan Africa, the region lags behind the rest of the world in "almost every index of economic performance" (Rasheed & Chole, 1994). Despite the expenditure of billions of dollars on sustainable development, life expectancy is dropping and child mortality is rising from the effects of malaria, HIV/AIDS and other diseases, overwhelming entire communities (United Nations Statistics Division (UNSTAT), 2006; United Nations World Health Organization (WHO), 2006). Despite international recognition of sub-Saharan Africa's educational needs as included in the Universal Declaration of Human Rights, availability of compulsory primary education, schooling of females and of adult literacy rates remain the lowest in the world (Lewis, 2005; UNSTAT, 2006).

Despite working groups and meetings among non-governmental organizations, governments, and experts in economic development, the economy in sub-Saharan Africa has such a "depth of economic malaise…that today the average African is worse off than he/she was at independence a generation ago" (Rasheed & Chole, 1994). And finally, despite a rich environmental legacy handed down through generations, the environment throughout the sub-Saharan region is being compromised at such an alarming rate by corporate and government interests as well as by a population trying to etch out an

existence in an increasingly harsh location, that the viability of food production and food security is almost non-existent (UNSTAT, 2006; World Bank, 2007). Indeed, in the last several decades, sub-Saharan Africa has not become a safer or more economically developed place. Rather, life for many has become increasingly more precarious and difficult. Sub-Saharan Africa is in crisis and current development policy and practice have failed to provide solutions to this crisis.

There are many reasons why countries in sub-Saharan Africa have failed to benefit from the development strategies enacted by foreign and local governments, the United Nations (and all its subsidiary organizations), international financial institutions such as the International Monetary Fund (IMF) and the World Bank, and various international non-governmental organizations (NGOs). Colonialism, with its subsequent enslavement, genocide and cultural imperialism have robbed the sub-Saharan region of a heritage that would have provided the people of sub-Saharan Africa with a wealth of problem-solving strategies to deal with economic, social and environmental challenges and changes. The continued impact of colonialism through neocolonial policy and practices has resulted in destructive structural adjustment programs, corruption (both internally and externally imposed), exorbitant debt loads, misguided, often cruel, foreign interference and a globalized social and economic structure that has exploited the region to the point of extreme poverty. Another force negatively impacting development in the sub-Saharan region is the devastation ravaged on the health of people predominantly by HIV/AIDS as well as by other diseases such as tuberculosis and malaria. These diseases, and subsequently the insufficient aid provided by the Western world, have contributed to the weakened abilities of the region to feed and care for themselves thus preventing them

from fully engaging in economic growth or even the maintenance of the economic status quo.

When looking at the pain and suffering inflicted on sub-Saharan Africa and the apathetic or overtly cruel response from the "developed" world to date, it is possible to assume that permanent and positive development in sub-Saharan Africa is not likely and may even be regarded as impossible (Mammo, 1999). However, there are examples where sustainable development has been achieved, where poverty has been reduced, where the environment has been protected, and where communities have flourished. Most often such examples of sustainable development successes have come about as a result of the inclusion and utilization of local people and their knowledges in the development process. It is vital to recognize that in sub-Saharan Africa there is a vast pool of underutilized and under-appreciated knowledge and skills held by the local indigenous populations. The indigenous knowledge and resources available to combat poverty are substantial and are only beginning to be recognized as invaluable and essential pieces of the sustainable development puzzle. It is my contention that one of the keys to resolving poverty and mal-development in the sub-Saharan region is to include indigenous knowledges, skills and understandings of local and regional realities in any attempts at development. By honoring and including traditional knowledge in discussions of any development projects, indigenous knowledge will prove to be an integral part in the push to end poverty.

Purpose of the Study

Colonialism and neo-colonialism are responsible for much of the damage to the African continent including the diminished pride and confidence displayed by many

Africans regarding their indigenous knowledges. The African continent has been robbed of its history, culture, knowledge and understanding by colonial and neo-colonial pressure, making those knowledges seem worthless and primitive to many Africans. However, as will be demonstrated throughout this paper, local solutions may be the best option available for overcoming the difficulties that have stalled development in the sub-Saharan region. The United Nations Development Programme (UNDP, 2001) stated in a recent policy paper on indigenous peoples that "ensuring the engagement of indigenous peoples and their organizations is critical in preventing and resolving conflict, enhancing democratic governance, reducing poverty and sustainably managing the environment" (UNDP, 2001, p.1).

Also the United Nations Permanent Forum on Indigenous Issues (UNPFII) recommended "that agencies and bodies of the United Nations and other inter-governmental organizations rethink the concept of development, with the full participation of indigenous peoples in development processes, taking into account the rights of indigenous peoples and the practices of their traditional knowledge" (UNPFII). This study will explore the role indigenous populations can and should play in sustainable development. By utilizing local knowledge when searching for solutions to the difficulties faced by sub-Saharan African countries one can discover the almost endless resources available to the people of sub-Saharan Africa. Also, by honoring and valuing their knowledge and experience indigenous people will become proud of their heritage and empowered to play a role in determining their future.

While the United Nations, the World Bank and a wide range of other organizations have begun to recognize the worth of indigenous knowledge in the

development sphere, there remains a dearth of indigenous knowledge in development projects and programs. A key reason as to why local knowledge is often discounted or deemed unnecessary is that indigenous people still suffer discrimination and marginalization in their communities, and the worth of indigenous knowledges, despite recognition by larger governing bodies, is still not valued adequately within a larger regional and global context. This study will elucidate the value of indigenous understandings and knowledges by disassembling the myth of a knowledge hierarchy which locates indigenous knowledges under Western, scientific knowledges. The disassembling of a knowledge hierarchy which privileges Western, scientific knowledge over indigenous knowledge, will not only provide the populations of sub-Saharan Africa with a significant tool in their fight against poverty, but should also inform sustainable development theory and policy around the globe.

Further, this study will demonstrate the intrinsic value of indigenous knowledge as a component of successful development in sub-Saharan Africa by providing examples of development practices that have met or exceeded expected outcomes through the incorporation of indigenous knowledge throughout the development process. By providing examples of development successes as a result of indigenous knowledge usage, the continued and increased use of local perspective and understanding in the development process should be assured. By demonstrating that utilizing indigenous knowledge as a central component of development projects provides substantial benefits to communities and regions, it will be possible to extend the influence of indigenous knowledge and benefit regions suffering from the effects of mal-development.

The current status of development in sub-Saharan Africa is deeply disappointing. For decades various proposals have been advocated as development solutions and many have individually and collectively failed to have a substantial impact on the level of poverty, illiteracy, illness, economic stagnation, environmental degradation and other forms of measurable sustainable development in sub-Saharan Africa. It becomes clear that alternative knowledges and worldviews need to be incorporated into the development discussions. As Donnelly-Roark states "these decades of failed visions did not happen because donor agency staff were uncommitted, nor because African communities were uninterested. They happened because local people's voices – their involvement and control were thought to be part of the goal of development, rather than the process of development" (Donnelly-Roark, 1998, p.1). By using case studies from various regions in sub-Saharan Africa, I will demonstrate that there is a way to include indigenous worldviews and knowledge systems in the process of development to create a lasting and effective solution to development in sub-Saharan Africa.

Research Questions

The guiding question of this study is: "How can indigenous knowledge be used to increase the instances of sustainable development in sub-Saharan Africa?" In addition to this primary question I have identified sub questions which have directed my research and directed this discourse:

1. What examples of engagement of indigenous knowledge in the development process have been shown to have been successful?
2. How can lessons learned from successful integration of indigenous knowledges be utilized in other development projects?

As a response to the general failure to produce positive development outcomes in sub-Saharan Africa and many other areas of the underdeveloped or mal-developed world, the United Nations, including all 191 United Nations member states, have pledged to meet eight development goals by 2015. These eight goals, termed the Millennium Development Goals (MDGs), are to:

1. eradicate extreme poverty and hunger,
2. achieve universal primary education,
3. promote gender equality and empower women,
4. reduce child mortality,
5. improve maternal health,
6. combat HIV/AIDS, malaria and other diseases,
7. ensure environmental sustainability,
8. develop a global partnership for development.

As a framework from which to analyze the research questions identified above I have used MDGs as a tool to measure the value of incorporating indigenous knowledge into the sustainable development sphere in sub-Saharan Africa. The MDGs are an effective tool to use for both identifying the basic categories of development that can be influenced by indigenous knowledge to alleviate mal or under-development, and for evaluating and measuring the success of development projects that have incorporated indigenous knowledges, skills and indigenous peoples of the sub-Saharan region. In so far as the MDGs are indicators agreed upon by the international community as valid measurable targets, and in so far as the MDGs are used by the international community to represent

advances in the human condition, it follows that the MDGs are a valid and appropriate framework from which to base my analysis and conclusions.

While my discourse will primarily be based on a body of literature relating to my topic of discussion, it will also be informed by my own experiences in various countries in sub-Saharan Africa. While working in Tanzania and Kenya I was directly involved in and able to observe indigenous communities working on local development projects. Additionally, my research continues to be informed by my current employment with Canada World Youth, a non-formal, experiential learning organization for youth around the world.

Definition of Terms

Prior to any in-depth discussion on the importance of integrating indigenous knowledge into cultural and economic development, it is imperative that particular terms and concepts are given a contextual, working definition. Primary to the goal of providing clarity for further discussion is the need to define indigenous knowledge and to identify the indigenous populations which hold indigenous knowledge. In defining indigenous knowledge, it is also necessary to define Western, scientific knowledge and comment on its relationship to indigenous knowledge.

Although many knowledge systems are utilized around the world, it is possible to recognize the common broad classifications of knowledge systems. Dewes (1993) identifies two major, overarching groups or categories of knowledge systems: indigenous knowledge systems and western knowledge systems. As documented in a paper from an international conference on indigenous knowledge systems in Africa and their relevance for sustainable development, one of the fundamental differences between indigenous and

western knowledge systems is that while "western knowledge systems are made universal through western education, which is entrenched in many world cultures, indigenous knowledge systems are confined to specific areas and are being suppressed in many parts of the world" (Conference). Shiva defines this inequality as a result of a colonial and neocolonial imposed hierarchy of knowledge systems which located western knowledge systems above indigenous knowledge systems (Shiva, 2000, p. vii) with the result that indigenous knowledge systems were seen as invalid.

By viewing indigenous knowledge as an opposing knowledge system to western knowledge systems we get an inaccurate and partial definition of indigenous knowledge. Instead indigenous knowledge is defined for this work as "a body of knowledge associated with the long-term occupancy of a certain place. This knowledge refers to traditional norms and social values, as well as to mental constructs that guide, organize, and regulate the people's way of living and making sense of their world" (Dei, Hall, & Rosenberg, 2000, p.6). In other words, indigenous knowledge "encompass[es] the sophisticated arrays of information, understandings and interpretations that guide human societies around the globe in their innumerable interactions with the natural milieu: in agriculture and animal husbandry; hunting, fishing and gathering; struggles against disease and injury; naming and explanation of natural phenomena; and strategies to cope with fluctuating environments." (United Nations Educational, Scientific and Cultural Organization (UNESCO], 2002). According to information provided by the World Bank, indigenous knowledge is culturally or societally unique local knowledge that is the basis for decision-making in a community (World Bank Indigenous Knowledge (IK) Program). Indigenous knowledge is a strong current that runs throughout every aspect of the

population. It is the basis for healing, decision making, problem solving and educating members of a particular group. It is an essential aspect of the historical, cultural, and socio-economic fabric of the community and the individuals within that community.

A worldview different from a western, scientific-based worldview is the basis for indigenous knowledge and while all indigenous worldviews are unique and specifically developed for a particular region and people, there are many similarities among indigenous groups which allow one to make generalizations about indigenous knowledge throughout the world. First, indigenous knowledge tends to develop in relation to the needs of the community not the needs of the individual. This relationship leads to a cooperative based model not a competitive based model as we often see with western, scientific knowledge systems. Second, holders of indigenous knowledge believe that every thing on earth is interconnected. While western scientific-based knowledge often attempts to dominate and compartmentalize the natural and ecological aspects of the planet, indigenous knowledge tends to deeply connect every individual and community action directly with the environment. As Mosha states, "this view of the universe empowers indigenous Africans to develop profound reverence for, and fascination with, the universe, always in a holistic manner" (2000, p.13).

Finally, indigenous groups tend to pass on knowledge through less formalized forms of education compared to western scientific-based knowledge methods. The passing on of information and wisdom "takes place in everyday interaction in life, at many teachable moments in a person's life, and through specific moral transformation rites" (Mosha, 2000, p.19). Education is often passed on through social interactions such as storytelling and the recounting of mythology or fables. A child is raised to become an

active member of the group and cultural information, history and expectations are transmitted to the child as he/she grows. Since indigenous communities tend to be strong communities with strong spiritual interconnectedness and strong reverence for the environment, the education process is very holistic and comprehensive.

Indigenous knowledge can also be defined as that knowledge belonging to indigenous populations. José Martínez-Cobo, the Special Rapporteur to the Sub-Commission on Prevention of Discrimination and Protection of Minorities, in his study of discrimination against indigenous peoples defined indigenous populations as:

> Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from the other sectors of societies now prevailing in those territories, or parts of them. They form at present non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal systems. (http://www.nciv.net/Millennium/Definitions/some_indigenous_peoples_english.htm).

This definition of indigenous people was used as a basis for the Declaration of the International Year for the World's Indigenous People in 1993 and can be complemented by Principle 22 of the Rio Declaration which highlights the role of indigenous

communities in sustainable development by declaring that "indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development" (United Nations Environment Programme (UNEP], 1992). It is important to recognize the rich diversity of indigenous groups and while it is providing a working definition to ensure clarity for this discussion it must be recognized that indigenous knowledge is held by a wide and exceedingly diverse and complex groups of peoples.

Significance of the Study

The research questions identified earlier were designed to address the relationship between indigenous knowledges and sustainable development in sub-Saharan Africa and the way in which indigenous knowledges can be combined with Westernized development paradigms to enable development policies and programs to be more sustainable, more appropriate and more effective. I have chosen this topic because my own experiences in Mozambique, South Africa, Uganda, Kenya and Tanzania have led me to question the current system of development aid and programming in the region. I confess to having a strong emotional response when I think of the billions of dollars spent in an attempt to provide assistance and to enable economic, social and political development, but which too often fails to provide results for the poor, marginalized and disenfranchised populations. Repeatedly I have read about, heard about, or seen examples of development projects that failed to work because the people that the projects

aimed to help were not consulted, and their intimate knowledge of and experience with their environment, culture and historical realities were devalued and disregarded.

I have worked closely with indigenous groups in Kenya and Tanzania and have seen the benefits available when indigenous practices were reinstated and the local indigenous people were given voice and empowered to make changes for their own betterment. I have witnessed the advantages obtainable when development policy and practices were locally designed utilizing the knowledge owned by the indigenous groups who had inhabited a particular locale for generations. In May 2003, I was offered the position of project supervisor for the United Nations Development Programme - Equator Initiative Youth Exchange. Previously, I had traveled to several countries in Southern Africa and had worked in Mozambique and Uganda as a teacher and a computer resource person with VSO Canada. I enjoyed the rewarding and often challenging aspects of working in different cultures and I particularly enjoyed my time spent in sub-Saharan countries as a traveler, volunteer and employee. I was currently studying at the University of Alberta and had been focusing on looking at indigenous issues, particularly relating to sub-Saharan African populations. By reviewing the Equator Initiative literature and researching the areas in which I would be working, I determined that there was an excellent fit between the recently offered Project Supervisor position on the Equator Initiative Youth Exchange and my interests and studies to date.

The United Nations Development Programme introduced the Equator Initiative Youth Exchange in 2003 to complement and extend the scope of the first phase of the Equator Initiative which focused on recognizing and rewarding local communities situated in the equatorial belt, for their successful poverty reduction and biodiversity

conservation projects. The Equator Initiative Youth Exchange was developed in partnership with Canada World Youth, a Canadian organization with extensive experience in developing international experiential educational programs for youth. The Equator Initiative Youth Exchange brought together thirty-six youth from Kenya, Tanzania and Canada for seven months. The participants from Tanzania and Kenya were selected from the Equator Initiative prize-winning communities and were brought together with participants selected from across Canada for their interest and experience working with environmental issues.

The team worked directly with the community on a variety of environmental and social projects. Additionally, the team volunteered within the community and furthered their learning through more formalized presentations and discussions on a wide range of developmental, social and environmental issues. Throughout the program the participants were encouraged to not only develop a critical self-analysis of themselves and their communities, but to also develop a critical understanding of North-South development issues, including the impact of biodiversity and environmental care and how they apply to regional development.

My work with the team, my growth as an educator, and as someone actively involved in a development process in sub-Saharan Africa, that included the voices, understandings and values of indigenous people, has led me to produce this study.

Summary

The failure of historic and current development theory and practice to alleviate the suffering of the populations in sub-Saharan Africa, opens the discussion on the purpose of the study: to demonstrate the value of indigenous knowledge incorporation in

development and to submit examples of positive indigenous incorporation in the development sphere which has resulted in successful outcomes.

Chapter 2: Literature Review & Content Analysis

Introduction

Indigenous knowledge can be used to increase the instances of positive and sustainable development in sub-Saharan Africa. A comprehensive review of current and historical literature on the topics surrounding the inclusion of indigenous knowledge systems in developmental policy and practice in sub-Saharan Africa will provide a strong background to the discussions provided in subsequent chapters. As such, this chapter will focus on the current and historical literature addressing topics relevant to a discussion of indigenous knowledge engagement in the development milieu.

Although a review of literature discussing the importance and value of indigenous knowledge to successful development holds a primary position within this chapter, the literature outlining the historic reasons why indigenous knowledge has been subjugated and dismissed for such a large portion of recent history provides a basis for subsequent discussion. The colonial forces that worked towards the undermining and decimation of indigenous knowledge in sub-Saharan Africa and thereby nearly robbing the African continent of its indigenous heritage, and, as a result, the wealth of development solutions available within that heritage played a major role in current status of indigenous knowledge in development.

Colonialism and its Impact on Indigenous Knowledge

Colonialism is seen as the beginning of the decline in importance of indigenous knowledge in sub-Saharan Africa. By beginning with colonialism we can see how indigenous knowledge was marginalized and how indigenous populations in sub-Saharan

Africa lost access to the advantages previously available to them through inherited indigenous knowledge and skills. The topic of colonialism and its historical and continuing effects on populations (particularly indigenous populations) in sub-Saharan Africa is widely discussed and written about. The topic can be divided along many lines and is certainly capable of supporting several studies on its own. However, to respect the constraints of this particular study I will focus on the major areas of colonial impact that can be construed as particularly relevant to this discussion.

Historically, colonial powers have morally and ethically validated their domination of local populations by determining that the populations did not possess cultural, economic, social or educational systems that could compare to Western systems. Youngblood Henderson (2000) defined this dismissal of local systems as the "diffusionist myth of emptiness" (p.61). In order for colonial powers to contend that western, scientific knowledge systems were superior to local, indigenous knowledge systems, it was important for them presuppose that indigenous populations had a very simple or even absent knowledge system prior to the arrival of colonial powers. Such presuppositions allowed colonial powers to develop a sense of misplaced benevolence. As Shizha (2005) stated in his work looking at indigenous knowledge inclusion in primary schools:

> In Africa, the colonizer wrongly perceived colonization as a process for and means of bringing modernity to societies being "backward" and living in the "dark ages." Colonization stripped the colonized of their indigenous learning structures and knowledge constructs and forced them to use knowledge constructs and learning structures of the colonizer. (p. 14)

The rationale for the destruction of indigenous knowledge from a colonial perspective was that indigenous knowledge systems were inferior to those developed in the West and that the promotion of westernized, scientific knowledge was clearly more desirable than the alternative indigenous knowledge systems that were not believed to be objective, reliable or valid.

Youngblood Henderson (2000) stated that "Classic diffusionism asserts an emptiness of basic cultural institutions and people in much of the non-European world" (p. 61), which allows European colonialists to impose their own worldview in the perceived absence of other valid and equally relevant worldviews. This is likely a result of the learned history which starts upon the arrival of colonial intervention, the assumption that local populations failed to develop a cognitive, comprehensive, effective cultural system is often perpetuated through the educational system, the media and collective memories. By failing to recognize the intrinsic value of knowledge systems developed in a particular locale over millennia, the practitioners of colonialism were instrumental in subjugating indigenous knowledge and relegating that knowledge and the people who held the knowledge to a substandard position.

Battiste (2000) contended that colonialism not only attempted to place indigenous worldviews and knowledges in an inferior position relative to western knowledge systems but rather that the rejection and systematic destruction of indigenous knowledge was in fact a goal of colonialism. Battiste (2000) called this phenomenon "cognitive imperialism", which she defined as "the imposition of one worldview on a people who have an alternative worldview, with the implication that the imposed worldview is superior to the alternative worldview" (p. 193). Traditional, indigenous methods of

knowing were in a large part destroyed when colonial powers imposed their own worldviews on sub-Saharan Africa indigenous populations. As Shiva (2000) stated "Colonialism has from the very beginning been a contest over the mind and the intellect" (p. vii) and that as a direct result of colonization "Indigenous knowledges have been systematically usurped and then destroyed" (2000, p. vii) around the world.

Indigenous knowledges around the world typically embraced the idea of pluralism and diversity, and as such developed a wide range of ways for coping with environmental, socio-economic and cultural phenomenon that were and continue to be well suited for a particular location. Unfortunately, with the advent of colonialism, diversity and the idea of equally important knowledges became unpopular. Colonial powers sought to supplant local knowledge with a Euro-centric, scientific way of knowing, thereby negating the worth of traditional indigenous knowledge.

The transformation from many, diverse worldviews all having value and worth, to one worldview (the western, scientific worldview) being superior to all others is what Shiva (2000) called a "hierarchy of knowledge" and it is this hierarchy that privileges western knowledge systems and subjugates and silences indigenous systems. Shiva pointed out "when knowledge plurality mutated into knowledge hierarchy, the horizontal ordering of diverse but equally valid systems was converted into a vertical ordering of unequal systems, and the epistemological foundations of Western knowledge were imposed on non-Western knowledge systems with the result that the latter were invalidated" (2000, p. viii). Such invalidation of knowledge systems resulted in an environment where indigenous knowledges were often seen as primitive, backward or irrelevant and the legacy of such invalidation is that indigenous knowledge has been

ignored in development projects to the detriment of indigenous people and the larger global population.

Perhaps one of the most devastating aspects of colonization is the hegemonic dominance of the imperialistic forces over the indigenous or local populations. The crippling effect of the vertical ordering of knowledge systems with the colonizing, Western, scientific system being portrayed as superior or more valuable than other knowledge systems on the colonized populations, particularly in sub-Saharan Africa has been immense. Gramsci (as cited in Okolie) defined hegemony as "the spontaneous' consent given by the great masses of the population to the general direction imposed on social life by the dominant fundamental group; this consent is 'historically' caused by the prestige (and consequent confidence) which the dominant group enjoys because of its position and function in the world of production (2003, p. 439). It is a devastating truth that over time, not just the colonizer but also many colonized individuals and groups began to view their knowledge systems as being less important than the western, scientific knowledge system. Wa Thiong'o (1986) used the term "cultural bomb" to describe the theft of the belief in the value of cultural heritage, indigenous knowledge and individual identity. Wa Thiong'o (1986) described the effect of the cultural bomb as follows:

> The effect of the cultural bomb is to annihilate a people's belief in their names, in their languages, in their environment, in their heritage of struggle, in their unity, in their capacities and ultimately in themselves. It makes them see their past as one wasteland of non-achievement and it makes them want to distance themselves from that wasteland. It makes

> them want to identify with that which is furthest removed from themselves; for instance, with other peoples' languages rather than their own. It makes them identify with that which is decadent and reactionary, all those forces which would stop their own springs of life. It even plants serious doubts about the moral rightness of struggle. Possibilities of triumph or victory are seen as remote, ridiculous dreams. The intended results are despair, despondency and a collective death-wish. Amidst this wasteland which it has created, imperialism presents itself as the cure. (p. 3)

The cultural bomb, as described by Wa Thiong'o, is an example of the hegemonic clout imposed in both subtle and blatant forms by colonizing forces in the sub-Saharan region.

Other writers have described the disdain that indigenous or local populations feel for their traditional knowledges and practices, particularly focusing on the role colonial education has played in the undervaluing and marginalization of indigenous knowledge and cultural identity. As Nyerere (1968) stated "colonial education induced attitudes of human inequality, and in practice underpinned the domination of the weak by the strong" (p. 269). Wane (2000), in writing about the indigenous knowledges held by Kenyan women, used descriptive dialogue to illustrate the belief by Kenyan women that their knowledge is clearly not important. One Kenyan woman is quoted as saying "What could you learn from me, an old woman like me with no education?" (p. 54). Such comments "illustrate clearly the widely held belief that knowledge comes from formal schooling" (Wane, 2000, p. 54) and not through the less formalized educational methods employed by indigenous people.

Wa Thiong'o (1986) described the use of English language, particularly in education, as having had and continuing to have an insidious, hegemonic impact on African populations. In describing the experience of an African child in a colonial educational setting Wa Thiong'o (1986) asked his readers to consider the impact of an education where a student's "own native languages were associated in his impressionable mind with low status, humiliation, corporal punishment, slow-footed intelligence and ability or downright stupidity, non-intelligibility and barbarism" (p. 18). The colonial educational approach that lead to the undervaluing or ridiculing of indigenous knowledge was both dangerous and debilitating, particularly when such educational systems did not provide meaningful, relevant information that could be used in place of the indigenous educational systems in identity creation and cultural recognition. Nyerere (1968) pointed out that the formalized system of education introduced by colonial powers was detrimental for many reasons, not the least of which was because:

> At present our pupils learn to despise even their own parents because they are old-fashioned and ignorant; there is nothing in our existing educational system which suggests to the pupil that he [she] can learn important things about farming from his [her] elders. The result is that he [she] absorbs beliefs about witchcraft before he [she] goes to school, but does not learn the properties of the local grasses; he [she] absorbs the taboos from his family but does not learn the methods of making nutritious traditional foods. And from school he [she] acquires knowledge unrelated to agricultural life. He [she] gets the worst of both systems! (p. 277)

By destroying the validity of indigenous knowledge and the educational systems that transmitted that knowledge, colonial education robbed indigenous groups of a vast and very important store of knowledge and that loss continues to injure indigenous populations. By failing to recognize the value of indigenous worldviews and by encouraging indigenous students to place Euro-centric knowledges ahead of indigenous knowledges in relevance and importance, students received a fragmented education that did each student an injustice. The students were left in a nether region where they no longer appreciated their own cultural identity and the education and knowledge that accompanied that identity, but neither were they given access to the dominant European colonial cultural identity.

It is important to recognize that the damage caused by colonialism in sub-Saharan Africa did not cease to hold power over local populations after African countries won their independence. Neo-colonialism and the associated destructive, paternalistic development and aid programs have continued to cause harm in the region. Heavy debt burdens, structural adjustment policies and economic ghettoizing have replaced direct colonialism. For many indigenous people in sub-Saharan Africa the social and economic realities have altered very little. The economic and social power base still lies with non-indigenous colonizing populations and indigenous people are still marginalized and dependent. By re-instating indigenous people's right to determine their own path it will be possible to move beyond the negative impacts of colonialism.

Recognition of Indigenous Knowledge Systems

Until recently the inclusion of indigenous knowledge and indigenous worldviews was something added to development processes as an afterthought rather than as a major

directive force for any developmental project. Indigenous knowledges of the world, particularly in terms of developmental policy and theory were considered backward and unable to provide any worth or value to developmental projects. However, in the past few decades there has been a notable shift in thinking that has resulted in indigenous knowledge receiving recognition for the richness and significance it can add to a development project.

Examples of this recognition are easy to find in the enormous quantity of literature produced by the United Nations about indigenous people, the unique knowledges they have and the role of that knowledge in the development sphere. The United Nations General Assembly proclaimed the International Decade of the World's Indigenous Peoples from 1995-2004 and established a Permanent Forum on Indigenous Issues in 2000 to address indigenous issues relating to economic and social development, culture, the environment, education, health and human rights. (http://www.un.org/esa/socdev/unpfii/index.html). Additionally, there are several examples of the United Nations recent push towards increased respect of indigenous knowledges as shown in the United Nations literature created to address such issues relating to indigenous women (http://www.un.org/womenwatch/ianwge/taskforces/tfIndigenousWomen2005.htm), indigenous peoples (http://cyberschoolbus.un.org/indigenous/index.asp), indigenous children (http://www.un.org/works/goingon/australia/australia.html), funding for indigenous populations (http://www.ohchr.org/english/about/funds/indigenous/), working groups on indigenous populations (http://www.ohchr.org/english/issues/indigenous/groups/groups-01.htm), indigenous

peoples and sustainable development (http://www.ifad.org/events/gc/26/docs.htm#ip) to name a portion.

Further evidence of the increasing importance placed on indigenous people's incorporation into the development process is exemplified by the World Bank, which launched the Indigenous Knowledge for Development program in 1998 and has since developed a database of indigenous knowledges and both a multi-lingual (including Swhaili and Wolof) website and monthly publication dedicated to sharing and promoting indigenous knowledge engagement in development (www.worldbank.org/afr/ik). To further demonstrate the worth the World Bank places on indigenous knowledge engagement in the development sphere, the president of the World Bank, in literature outlining the opportunities and challenges in including indigenous knowledge in development, stated that "indigenous knowledge is an integral part of the culture and history of a local community. We need to learn from local communities to enrich the development process" (Gorjestani, 2004, p. 5). Von Liebestein (2001), the director of The Centre for International Research and Advisory Networks operating within The Hague, stated that:

> Although the pace of acceptance was slow, we can say that as we enter the 21st century, development is no longer the exclusive domain of western (global) knowledge. In the second half of the 1990's, we saw IK [indigenous knowledge] enter the mainstream of activities and initiatives undertaken by developing countries and by the international donor community, UN agencies, and most recently the World Bank. (p. 1)

The inclusion of indigenous knowledges in the activities and initiatives undertaken by development organizations demonstrates a fundamental shift in the way sustainable development is designed, implemented and evaluated and this shift indicates that there is recognition that indigenous knowledges bring sustainability and value to development.

Semali (1999) saw the recognition given to indigenous knowledges as indicative of "a reversal of years of bias and ultimately a departure from the perception of millions of people as irrational peasants in need of development" (p. 308). He further comments that "local people do know a great deal about their environment, in which they have often lived for generations; and this knowledge must be taken into account in the planning and implementation of educational as well as developmental policies" (p. 308). Semali discussed the concept of decolonization of knowledge to explain the recent recognition of indigenous knowledge in sustainable development, stating that those engaged in the development process in sub-Saharan Africa need to "begin a new path which departs from foreign interpretations of what is important at the local level" (1999, p. 313). The fact that indigenous knowledges are beginning to be recognized and valued as an integral part of any development process shows that the knowledge hierarchy that favours the modern Westernized knowledge system as superior to other knowledge systems is no longer viewed as indisputable. By decolonizing knowledge, it becomes clear that modern, Western, scientific knowledge can no longer purport to be a universal knowledge system applicable to all people at all times.

The reason indigenous knowledge is beginning to be distinguished as a fundamental component in development is due, in large part, to a fundamental shift in development theory - a shift from a "trickle-down" to a more participatory development

paradigm. Donnelly-Roark (1998) stated that "expanding perception of this new reality has initiated a paradigm change away from mechanistic top-down models primarily concerned with economic development, toward dynamic participatory approaches concerned with all facets of human development" (p. 73). Donnelly-Roark argues that the reason development projects have failed to lift millions of Africans out of the cycle of poverty is because those projects were not developed with the input of the people they intended to assist. In a similar vein, Sillitoe (2000), reasoned that recent attempts to engage indigenous populations in development projects results from the development agencies themselves. He stated that "agencies now accept that they need to consult more closely with their 'target beneficiaries', that is, involve the poor themselves in problem identification and decision-making processes, rather than trying to impose outsider-devised interventions on them" (p. 3). This new direction bodes well for future development projects and provides an underlying feeling of sustainability that was missing in earlier development attempts.

It is important to note that there is not a consensus that this trend toward greater recognition of indigenous knowledge engagement in the development process is a good thing. There are those who feel the recognition of indigenous knowledge in the development sphere is not necessarily a sign of more participatory or community-driven development, but rather that the hegemonic influence exerted during colonial periods has simply mutated into another type of hegemony; development hegemony. Okolie (2003) criticized current development practices as being hegemony and contends that "this hegemonic includes the belief that development equals Westernization and that external finance is inevitable for development" (p. 431). He commented more directly on impact

of development hegemony specifically regarding the engagement of indigenous knowledge into development in the following passage:

> The strategy seeks to incorporate indigenous knowledges into the pre-existing conception and structures of agricultural development promoted by the [World] Bank. Indeed, in response to its critics the Bank currently devotes a considerable amount of resources to indigenous knowledge. Thus, this hegemony is achieved in part through the production and dissemination of development knowledge about and in Africa. (p. 431)

There have also been arguments put forward accusing the development sector of developing a model which ultimately, is more interested in preserving the status quo than truly encouraging change for those in sub-Saharan Africa. Verhelst (1990) argued that "the industrialized countries diffuse an ideology of development, modernization and progress which serves specific interests. It consists of such ideas as the international division of labour, economic laissez-faire and political control of peasant and workers' organizations, often backed by more or less overt state violence" (p. 2). It is important to recognize the possibility of indigenous knowledge incorporation being used as placating lip service rather than being truly valued within an indigenous context and as such one must critically analyze the manner indigenous knowledge engagement is procured.

By reviewing literature and documentation on the topic of indigenous knowledge recognition it can be seen that there is growing respect and appreciation for what important components indigenous knowledge can add to the development discussion.

However, it is also important to be aware that the discussion around indigenous engagement must be done in a respectful manner that appreciates and values the complexity and contextualities inherent in any knowledge system. Furthermore, recognition is not sufficient for true indigenous knowledge engagement. To avoid being accused of merely theorizing about the inclusion of a more participatory, indigenous-based development paradigm, it becomes necessary that developmental organizations, particularly the World Bank, the International Monetary Fund and the United Nations, actually act upon what they have written. The following section will analyze literature written about the practicalities surrounding indigenous knowledge engagement in sustainable development.

Engaging Indigenous Knowledge in Sustainable Development

While it is an important step to recognize that indigenous knowledge has substantive and vitally important aspects to share in terms of achieving successful sustainable development in sub-Saharan Africa, it is more important to recognize that all the theorizing in the world will not alleviate poverty, empower indigenous populations or give legitimacy and sustainability to a single development project. Only through actual engagement can the value of indigenous knowledge in sub-Saharan Africa be garnered. The following section will look at the literature written specifically about indigenous knowledge engagement in sustainable development, particularly those initiatives that, through proven successes, give concrete examples of successful indigenous knowledge integration. The relevant literature addressing indigenous knowledge engagement and incorporation will be examined and through this examination a more thorough analysis of

what can and is being accomplished in indigenous knowledge engagement in sustainable development will be explored.

When reviewing the current literature on sustainable development of the inclusion of indigenous people in a participatory way, the issue of ownership and participation is a constant refrain. The importance of ownership and participation cannot be underestimated in sustainable development projects and policies. As Dei (2000) stated in his article about African development:

> For the idea of development to have any credibility at all, it must speak to the social, cultural, economic, political, spiritual and cosmological aspects of local peoples' lives, as well as to their specific needs and aspirations. Debates about "development" must be situated in appropriate social contexts that provide practical and social meaning to the actors as subjects, rather than as objects of development discourse. This is a critical perspective on development that argues that local communities should own and control the solutions to their own problems. (p. 73)

It is important to note that Dei speaks about the need for development projects and policies to have credibility and that without the consultation of indigenous people in the development discussion there can be no credible outcome. This is important as it highlights the vital position indigenous knowledge is seen as having in the pursuit of sustainable, credible development.

Further to the discussion of credible ownership of development processes, Mkapa (2004) also commented on the absolute necessity of ownership stating that "the sustainability of many externally induced development projects hinges on the ownership

by the beneficiaries" (p. 2) and that "when building on indigenous knowledge, ownership does not even arise as an issue. Indigenous knowledge is locally managed and owned" (p. 2). Mkapa continues by saying that the developmental sustainability that occurs by working with locally owned and managed indigenous knowledge will occur not just through the inclusion of indigenous practices but also because "the very process of learning from the community recognizes the community and the bearers of indigenous knowledge as partners in development who bring as much, if not more to the process as the providers of global knowledge" (p. 2). This basic understanding that indigenous knowledge and indigenous populations have an integral role to play and must own rather than be owned by the development process is a crucial component of successfully engaging indigenous knowledge in the development sphere.

Related to the concept of ownership within the development milieu is the concept of participation. Participation, as a strategy to increase sustainable development, enlists the indigenous knowledges of a region to aid in the conversion of local populations from passive recipients of development to active producers of development, making their own decisions and obtaining sustainable and fair development. Mammo (1999) claimed that "the fundamental assumption of participation, as reasoned here, is that it is an input to development activities geared towards bringing about socio-economic development that finally helps to reduce the level of poverty (p. 229). Mammo does not argue for legitimacy or credibility but rather he defines the result of indigenous participation as socio-economic development that ultimately will help to lessen poverty.

Aside from the question of ownership and participation in sustainable development there are also opinions regarding how, specifically, positive indigenous

knowledge engagement in the development process can be encouraged. One suggestion by Verhelst (1990), was that truly progressive development projects will not be initiated in the "developed" world and then taken to "under-developed" or "mal-developed" regions but rather that "a project should be a local enterprise undertaken by a group of the indigenous population trying to put an end to the situation of dependence which keeps them in a state of poverty and oppression" (p. 14). Such an idea illustrates a common refrain that the populations for which sustainable development is aimed should not be considered passive receivers of development but rather active participants directing the process through the utilization of the local understandings developed and proved through centuries. It is an important step in the progression of development theories that the actual design of a development project should come from those people the project aims to assist.

The World Bank may not be as declarative about the design of projects being within the domain of indigenous populations alone, but it has developed a strategy to actively promote indigenous knowledge incorporation in development. The World Bank has identified three ways it aims to improve the quality of development programs and empower local communities: first by raising awareness of the importance of indigenous knowledge; then by enhancing local capacity to document and exchange indigenous knowledge; and finally by applying indigenous knowledge in development programs (Gorjestani, 2004, 46). While one must critically analyze the incentives for a strong focus on indigenous knowledge incorporation by the World Bank, it is clear that the impact of such a large and powerful organization championing the inclusion, engagement and incorporation of indigenous knowledge in development projects has material impact.

As a result of the focus put on indigenous knowledge by many international development organizations such as the World Bank, the increasing rate of recognition and implementation by governing bodies in sub-Saharan Africa is growing quickly. For example, Uganda has completed a national indigenous knowledge strategy; Burkina Faso, Malawi, Mali, Kenya, and Tanzania have held workshops to help launch the process; and Uganda's Poverty Eradication Action Program (PEAP) has incorporated indigenous knowledge as a component of science and technology. Progress in integrating indigenous knowledge into development efforts has also been observed in the projects supported by the World Bank. (Gorjestani, 2004, p. 47).

The United Nations specialized agency, the International Fund for Agricultural Development (IFAD) has also identified issues of central interest in promoting indigenous engagement with the development process. IFAD maintains that as a result of the direction taken by the organization to engage indigenous populations there has been significant progress within a development framework and that this progress was the result of IFAD addressing issues of crucial importance to indigenous peoples such as:

> Securing their access to their lands; empowering them through capacity-building and genuine participation; valuing and revitalizing indigenous knowledge and culture; promoting intercultural awareness; supporting bilingual and cross-cultural education; enhancing indigenous identity and self-esteem; promoting women's capacity for autonomous action in the face of constricting social sanctions and structural inequalities; strengthening indigenous peoples' institutions and fostering apex

organizations with a view to building indigenous peoples' coalitions.

(IFAD, 2003, p. 6)

Such examples of developmental success with indigenous populations through an appreciation of indigenous knowledge and a recognition of the particular concerns and issues facing indigenous people contributes to the dialogue empowering the engagement of indigenous knowledges in development.

Aside from the concrete steps outlined by policies within the World Bank and other organizations, it is also important to recognize that in order to produce sustainable development programs, the belief systems that led to disastrous development theories and practices of the past need to be changed, both in the "developed" and "developing" worlds. The knowledge hierarchy that privileges Westernized scientific knowledge needs to be deconstructed. "Development practioners should work from the perspective of multiple knowledges in which local knowledges are seen as important and worthy of interrogation. They should reject the arrangement of knowledges into hierarchies of superior and inferior" (Okolie, 2003, p. 442). This is not to say that the Westernized knowledge system has nothing to offer sub-Saharan Africa but rather that the developed world can no longer privilege their understandings of science and the world as better, and therefore more useful, than local or indigenous cultures.

Mkapa (2004) acknowledged the advances made by modern science in the fields of communication, health care, economic growth and our global capacity to grow adequate amounts of food to feed 6 billion people. However, Mkapa points out that "despite these achievements, we still have crisis of hunger, HIV/AIDS, illiteracy, isolation, and conflicts and abject poverty. While the debate on the cause of poverty is

not closed, we have learned that science and technology alone cannot provide all the answers or solutions to these unsolved problems" (p. 1). It is clear that to make substantive change we will need to utilize the knowledge and understandings from all knowledge systems, not just those we have chosen in the past to privilege. Sibisi (2004) proposed that:

> Knowledge grows only when shared, applied, and challenged. The world today cannot afford to omit the abundant body of indigenous knowledge to address its problems as expressed in the Millennium Development Goals. Conflict and contradictions between the different "knowledge worlds" will vanish once the gap between traditional and modern scientists and practitioners can be closed through mutual acceptance of standards, continuous exchange, protection of rights, and recognition and reward for contributors. (p. 38)

The engagement of indigenous populations in a sustainable development sphere is necessary if we are to see meaningful, credible engagement between the development sector and those for whom it purports to work.

Summary

Sub-Saharan Africa can become an independent, healthy and productive region in the globalized world. Sustainable development is possible if all the stakeholders involved with development accept that there can be no sustainability and therefore no lasting benefit to any program or any project if indigenous knowledge is not a basic component of development. Sub-Saharan Africa is wealthy in local, contextual understanding and wisdom that has served the communities and the individuals in the

region well for a long time. It is time to harness and direct that wealth in order to bring Africa out of its current condition. If indigenous knowledge can take its place among other systems of knowledge and can be used to direct and assist in development, there is an excellent chance that the problems of sub-Saharan Africa can be overcome.

Chapter 3 – Methodology and Research Design

Introduction

In an attempt to find relevant information useful in exploring the research question "how can indigenous knowledges be used to increase the instances of sustainable development in sub-Saharan Africa?" a broad perusal of related literature, documentation and other resources was undertaken. There are large bodies of work addressing the topics of indigenous knowledge, the engagement of indigenous populations, sustainable development, and development in sub-Saharan Africa. As the majority of the research conducted for this study has been in the form of an extensive literature review and a thorough content analysis of chosen literature, this chapter will attempt to outline the processes I undertook to find, evaluate and critically analyze the large body of work connected to my primary and secondary research questions.

First, I will describe the research paradigm selected for this study and the ontological, epistemological and methodological beliefs that led to the specific research paradigm selection. I will also describe the research methodology undertaken to identify relevant literature, and the methodology followed to review the literature collected. I will acknowledge the limitations of the research methodology selected and discuss ways to minimize those limitations. As well, I have included a brief section positioning myself and qualifying my research methodology according to my personal situation as researcher and the impacts of my individual history on the research conducted.

Selected Research Paradigm

The research paradigm selected for a particular study is of fundamental importance in guiding the research and influencing the research outcomes. The research paradigm is also instrumental in clarifying the underlying beliefs and assumptions that the researcher brings to the research process. According to Denzin and Lincoln (2005), "the net that contains the researcher's epistemological, ontological, and methodological premises may be termed a paradigm, or an interpretive framework" (p. 22) and since it is clear that a researcher's paradigmatic location is of utmost importance in evaluating the relevance and reliability of particular research project, it is imperative that a researcher plainly state his or her guiding paradigmatic principles. The researcher must locate himself or herself within a paradigmatic construction in order to provide ontological, epistemological and methodological frameworks from which the research may be reviewed and considered.

Of the five major research paradigms – positivism, post-positivism, critical theory, constructivism, and participatory/cooperative paradigms, the suppositions inherent in a critical theory paradigm (with post-modernist intentions) direct this research. The basis of critical theory, which demonstrates the duality of social critique linked with heightened critical consciousness of the possibility of positive social change, is congruent with my research goals (Guba & Lincoln, 2005, p. 192). While Guba & Lincoln provide a starting point for a critical theory research paradigm, it is important to note that an Africanist perspective of critical theory is used for this research. A premise of counter-hegemonic research findings is used during this research. Further to ideas provided by Geertz (as cited in Guba & Lincoln, 2005, p. 191) "blurring" of post-modern

paradigms will result in my own research accessing some components of constructivism and participatory/cooperative paradigms as well.

In addition, while I believe research based on a critical theory paradigm is best suited to the nature of this study, I recognize the constraints and limitations of applying a research paradigm that has developed within a colonial or neo-colonial framework, to conduct research on indigenous knowledge. An investigation of the limitations inherent in this paradigmatic selection will be addressed in a later section. By including aspects of constructivist and participatory/cooperative models with the critical theory paradigm to include an interpretivist need to have action be part of the research findings, I can minimize the negative aspects of the selected research paradigm. By utilizing the documented research created by individuals closely integrated into indigenous communities, by including positive examples of indigenous knowledge utilization, and by posing the research questions in a proactive and future oriented manner, I hope to provide opportunities for the findings in this study to be used as an emancipatory and participatory tool.

Ontological and Epistemological Beliefs

In considering the topic of research, the research questions, and the nature of research into indigenous knowledge, it seems appropriate to utilize a critical theory research paradigm. I recognize the ontological view of critical theorists as defined by Guba and Lincoln (2005) which states that critical theorists accept historical realism which supports the constructs of multiple virtual realities formed by social, political, cultural, economic, ethnic and gendered values (p. 193). Such ontological views are consistent with my own.

My epistemological standpoint reflects my belief that any individual definition of the nature of reality is influenced by a wide range of pressures and possibilities which are made increasingly complex and multifaceted by the progression of time and changes in personal location at various times. Additionally, I recognize that as a researcher I cannot remove myself from the research and as such I acknowledge that my values, ethics and the understandings gained from my personal socio-economic, gendered, ethnic and sexually oriented position will impact the questions I choose to ask, the way I decide to gather data, the manner in which I interpret that data and, finally, the way in which I present my findings.

Further, as this study looks at the knowledge systems developed by indigenous peoples it is imperative to identify and acknowledge the wide variety of equally relevant yet differing world views as developed by indigenous and non-indigenous populations around the world. By acknowledging the value of alternative worldviews and therefore alternative ways of recognizing the nature of reality, it can be hoped that the research conducted will reflect a valuing of all knowledge systems and will attempt to expose the knowledge hierarchies that privilege particular knowledge systems over others.

Documentary Analysis and Literature Review

A qualitative research methodology influenced by a critical theory research paradigm was identified as the most appropriate methodological option to answer the research questions posed in this study. My research consisted of a documentary analysis and literature review within a qualitative research framework, which is the most appropriate methodology for several reasons. First, as Marshall and Rossman (1999) indicate, qualitative research is considered apt when it is "research that seeks to explore

where and how policy and local knowledge and practice are at odds" (p. 57). This is particularly suited to the research questions identified in this study, as it is the differential between the implicated value of indigenous knowledge and the lack of true indigenous knowledge incorporation in the development sphere that is fundamentally at odds.

Further, a qualitative methodology is appropriate when the research "delves in depth into complexities and processes" (Marshall & Rossman, p. 57), as does this research. Indigenous knowledge and the populations that hold this knowledge are diverse, multi-faceted groups of individuals that do not have a static or simple worldview from which indigenous knowledge can be traced. Additionally, the development sector is an enormous entity with extraordinary diversity and scope and the research of such an area lends itself to a qualitative methodology. The study of indigenous knowledge systems and the development sphere is complex; therefore such traditional methods of quantitative research would be inappropriate and possibly produce misleading research outcomes.

Considering my first hand experience working with indigenous Maasai groups in both Kenya and Tanzania, I can contend that despite my daily interaction with various members of indigenous groups I believe a removed methodology is appropriate for this endeavour. There are several reasons for the decision to follow a methodology focusing on the current body of literature rather than engage in ethnographic research into indigenous/local cultures in an attempt to produce qualitative, interpretive, and emancipatory findings about the nature of indigenous knowledge incorporation and engagement in the development process. First, while I have some limited knowledge of the indigenous groups I worked with in Kenya and Tanzania, I lack a fundamental

understanding of the indigenous worldview necessary to attempt to produce reliable qualitative, ethnographically reliable research findings. Further, my limited Swahili skills and non-existent Maasai language skills would relegate all my findings to translated assumptions and would compound my inadequate understanding of indigenous knowledge, culture and worldview. Finally, it would be irresponsible to ignore the relationships of power that would be impossible for me to dismantle, and these relationships of power would be instrumental in skewing any research findings I could discover in the communities that I worked.

Additionally, within a qualitative research framework the methodology of document analysis was deemed the correct method for successfully addressing the research questions, particularly when considering a wide range of information from a variety of international institutions such as the United Nations, the World Bank and the International Monetary Fund. Due to the complexity and size of many larger development or donor organizations, other forms of qualitative inquiry such as interview and case study would be less effective in gathering a broad picture of policy and practice within those organizations

Finally, a documentary analysis is necessary to be able to account for the current lapse in indigenous knowledge incorporation in the development sphere by providing a historical record of development in the sub-Saharan region as well as a historical accounting of indigenous knowledges and populations within the study region. In order to describe how indigenous knowledges can be used to increase the instances of sustainable development in sub-Saharan Africa, it is vital that the documentary record of how indigenous knowledge came to be so undervalued and lost be included in the

research. Therefore an extensive examination of colonialism and the effect of colonial and neo-colonial policies and practices on indigenous knowledge and indigenous populations are included.

It is my contention that the methodology I have employed for this research endeavor is the most appropriate for the topic and in consideration of my position as a researcher. The limitations imposed by resources, time and logistical details as well as the limitations inherent in researching indigenous knowledge and indigenous groups from within the confines of a westernized institution such as the University of Alberta make the assessment and analysis of current literature and content the most effective method.

Document Selection

The documents and literature selected for review were obtained through a variety of methods. These methods included a broad documentary search utilizing a variety of web-based search engines, directions and suggestions from professors and colleagues, extensive library searches, including perusals of electronic and microfiche resources, the acquisition of books and articles related to the research topic, and finally, through course assigned literature and readings. Documents were obtained throughout the process of researching the topic as directed by the research questions.

Once the appropriate literature was identified I undertook a process of selecting the work that was most relevant to at least one of the research questions. This meant that literature with a focus on indigenous knowledge engagement, sustainable development, colonial and neo-colonial suppression of indigenous knowledge, descriptions of development projects engaging indigenous populations, and case studies outlining successful indigenous incorporation in sustainable development was selected for further

analysis. Additional literature and documentation on the United Nations Millennium Development Goals was included in the final analysis to assist in providing a framework for evaluating other documentation.

Many of the items included in the research document selection were policy documents, position papers, web sites, declarations, speeches, and conference notes from various development organizations, particularly those under the umbrella of the United Nations, as well The World Bank. Due to the size and complexity of these organizations the total number of documents and web sites devoted to issues outlined in the research questions was vast, and as a result not all documents available were reviewed or included in this research.

Limitations

It is important to my integrity as a researcher that I acknowledge the limitations of my selected research methodology. First, Western research brings with it a particular set of values and conceptualizations of time, space, subjectivity, gender relations and knowledge. Smith (1999) describes how the study of indigenous people is part of an ongoing legacy of imperialism and that "the term 'research' is inextricably linked to European imperialism and colonialism" (p. 1). As a non-indigenous researcher writing from within the confines of a Western post-secondary educational institution I must question and critique the perspective through which I observe and analyze information.

As Denzin and Lincoln (2005) state:

> Qualitative research, in many if not all of its forms (observation, participation, interviewing, ethnography), serves as a metaphor for colonial knowledge, for power, and for truth. The metaphor works this

> way. Research, quantitative and qualitative is scientific. Research provides the foundation for reports about and representations of "the Other". In the colonial context, research becomes an objective way of representing the dark-skinned Other to the white world. (p. 1)

When examining indigenous knowledge, I must be aware of the possibility of "othering" occurring. This is particularly important when considering that my research is conducted within a Western university environment - an environment that privileges modern, Western, scientific knowledge and worldviews over indigenous knowledges and worldviews. The very fact that my findings are presented in a written, English document, utilizing the frameworks and formats outlined by academic standards, implicate my research as having possible imperial connotations.

Aside from individual examples and case studies, I do not look at specific countries in sub-Saharan Africa in this study. This is not to minimize the individuality of each country, or even regions within those countries, but rather focuses on the similarities of the problems facing each country. I also recognize that national borders imposed on African populations by colonial powers do not accurately represent the areas of habitation by certain indigenous groups.

Situating Myself as Researcher

A critical theory analysis of the topic of indigenous knowledge engagement in sub-Saharan Africa requires that I recognize the impact my own perspective will bring to the research I conduct. I must disclose my positionality and acknowledge my subjectivity if I wish to reliably conduct research in any area in which my social, economic, racial, or gendered perspective would present challenges to the reliability of my findings. By

recognizing that "knowledge is not 'neutral', but influenced by human needs, interests and values" (Leicester, 2001, p. 58), my research is positioned in a way that accounts for the influence of internal and external forces on me as a researcher as well as on the research findings and interpretations.

When conducting research on topics involving marginalized or indigenous populations it is crucial that I recognize how my privileged position, as a member of a majority group with a heritage of colonialism and repression, can impact my research. How will my positionality influence me and affect my ability to accurately understand any findings, interpretations or conclusions resulting from the research process? As David (2002) states "all truths are socially situated" (p. 11). My worldview is fundamentally different from that of the groups of people included in my research. I cannot experience an indigenous reality; therefore any information I gather will be interpreted through my own cultural filters.

It is neither my desire nor my right to detail indigenous knowledges in the sub-Saharan region in this study. My privileged economic position has enabled me to travel extensively, thereby expanding my awareness of poverty and inequity around the world, particularly in sub-Saharan Africa. Such poverty and inequity should be questioned and challenged and throughout my formalized studies I have tried to understand why development has failed to help people in sub-Saharan Africa and how these failures can inform future successes. The solution lies in the engagement of indigenous knowledges in the sustainable development sphere.

Summary

A focus on content analysis and literature review of relevant topics is a valid and sensible methodology for this work. Providing an emancipatory framework of research to empower indigenous populations or relieve the social struggles of indigenous populations is not the purpose of this research, rather it is to understand and document the vital role indigenous knowledge plays in producing sustainable development in sub-Saharan Africa. By adding to the critical debate surrounding indigenous knowledge, knowledge creation and validation, and sustainable, positive development, I hope to raise awareness and positively contribute to the dialogue on knowledge production and the way we value and validate different ways of knowing and different knowledge systems. It is my aim to shed light on the value and intrinsic worth of indigenous knowledges and to outline the ways indigenous knowledges can be used to reach the Millennium Development Goals as well as to promote examples of successful cooperation between indigenous knowledge and sustainable developmental strategies.

I have developed a profound respect for the knowledge and ability of indigenous groups. There is a depth of wisdom relating to education, environmental care, societal cooperation and health care that I admire and believe needs to be acknowledged and protected. It is these sentiments that have led me to research the effects of including indigenous knowledge engagement with sustainable development projects, and it is hoped that through the methodological and paradigmatic choices I have chosen for this study I will be able to contribute meaningfully to the existing literature.

Chapter 4 – Research Findings

Introduction

The people in sub-Saharan Africa are amongst the poorest inhabitants on earth with the majority of the region's population lacking essential, basic necessities of life. At the beginning of the twenty-first century, governments, international development institutions, and non-governmental aid organizations must acknowledge and take responsibility for the failure of development policies, projects, and strategies in sub-Saharan Africa over the past fifty years. These governments, institutions and organizations have failed to provide the basic necessities for a meaningful and acceptable standard of living for much of the world's population. This is particularly true in sub-Saharan Africa where millions of people are still victimized by extreme poverty and structural violence.

One of the more effective and underutilized resources available in order to increase sustainable development in sub-Saharan Africa is the engagement of indigenous knowledge in the development sphere. A wide and comprehensive body of indigenous knowledge, preserved through centuries by indigenous people, is one of the primary resources that countries in the sub-Saharan region have to contribute to their own development. In order to reverse the effects of underdevelopment and mal-development in the sub-Saharan region, it is imperative that indigenous people, and the appropriate knowledge they possess, are valued and engaged in the development process. It is essential that the value of indigenous knowledge in sub-Saharan Africa is identified as a way to utilize available resources to promote sustainable development and achieve development goals as determined by the international community.

While there is a large and growing body of literature focusing on the theoretic benefits of employing indigenous knowledge in the development field, the practice of actually utilizing indigenous local knowledges in sustainable development in sub-Saharan Africa is relatively new. It has only been in the past few decades that the worth and value of indigenous knowledge has been recognized, and that development projects which have failed to include a local perspective are now seen as fraught with potential logistical and sustainability concerns. The validity of Westernized, scientific knowledge and the knowledge hierarchy that privileges Western, scientific knowledge over locally situated, temporally proven indigenous knowledge has been found to be faulty. As indicated by Von Liebenstein "development is no longer the exclusive domain of science and technology" (2001, p. 2) and in fact, more than any other resource available to developing countries, "indigenous knowledge is the largest single resource not yet mobilized for the developing enterprise" (Von Liebenstein, 2001, p. 1). While indigenous knowledge is still underutilized in sustainable development and the potentialities of indigenous knowledge engagement are far from being fully realized, the utilization of indigenous knowledge in the development process has begun. One can see positive examples in sub-Saharan Africa of incorporation and engagement of indigenous knowledge in sustainable development projects that not only benefit indigenous groups but also impact millions of people throughout the sub-Saharan region.

By utilizing the Millennium Development Goals, as presented by the General Assembly of the United Nations, as a framework for this discussion I will present the findings of my research in eight sections that will mirror the eight Millennium Development Goals. By presenting the research findings thematically it becomes clear

how integral and far-reaching the benefits of indigenous knowledge engagement can be. The research findings presented also contain examples of successful indigenous knowledge engagement in the sustainable development process, both from my own experiences working alongside indigenous populations as well as through research conducted for this work. Finally, the limitations of engaging and incorporating indigenous knowledge into the sustainable development sphere are explored.

Using the Millennium Development Goals as a Framework

As a response to the general failure to produce positive developmental outcomes in sub-Saharan Africa and many other areas of the underdeveloped or mal-developed world, the United Nations and its member states, have undertaken the task of meeting eight development benchmarks by 2015. These benchmarks, termed the Millennium Development Goals (MDGs) are to:

1. eradicate extreme poverty and hunger,
2. achieve universal primary education,
3. promote gender equality and empower women,
4. reduce child mortality,
5. improve maternal health,
6. combat HIV/AIDS, malaria and other diseases,
7. ensure environmental sustainability, and
8. develop a global partnership for development.

The eight MDGs are both ambitious in scope, and, unless a fundamental shift in the sustainable development paradigm occurs, virtually impossible to reach. The MDGs will not be achieved in the time remaining prior to 2015 unless there is a determined and

accelerated attempt by all participants in sustainable development to make the achievement of these goals a priority. If both developing and developed countries, along with aid organizations, international development agencies and non-governmental organizations mobilize themselves and substantially increase the instances of sustainable development practices prior to 2015 there is a limited possibility that the MDGs can be reached.

The MDGs have facilitated a renewed focus on indigenous peoples in the sustainable development debate as it becomes clear that in order to meet the MDGs it will be necessary to mobilize every individual and group that can contribute to a positive outcome. Indigenous people, and the local knowledge they possess, are attractive resources when looking at ways of reaching all of the MDGs by the year 2015. As Mkapa stated "There is not one of the Millennium Development Goals to whose achievement indigenous knowledge cannot contribute" (2004). Those organizations, governments and individuals engaged in the development process have neither the luxury nor justification to continue to ignore the value of indigenous knowledge and indigenous populations in development projects.

Indigenous knowledge has an enormous potential of substantially contributing to the achievement of the MDGs by 2015. The following sections highlight how indigenous knowledge has already been shown to positively impact both indigenous and non-indigenous communities throughout sub-Saharan Africa and how, through the presented examples, increased sustainable development can be undertaken.

Goal 1: Eradicate extreme poverty and hunger

The first MDG is to eradicate extreme poverty and hunger. The indicators or measurable steps for this goal are to "reduce by half the proportion of people living on less than a dollar a day" and to "reduce by half the proportion of people who suffer from hunger" (http://www.un.org/millenniumgoals/#). Currently in sub-Saharan Africa there are 315 million people living on less than a dollar a day and 31% of people do not meet the minimum nutritional requirements (UNSTAT, 2005). Of these numbers indigenous populations make up a significant percentage and therefore, the opportunities for indigenous knowledge to be instrumental in the achievement of this goal are impressive.

Extreme poverty is often associated with indigenous people, who are often the poorest of the poor and the most marginalized members of societies. In sub-Saharan Africa, indigenous populations represent the most marginalized populations. The United Nations Permanent Forum on Indigenous Issues finds that indigenous peoples place "at the bottom of the social indicators in virtually every respect" (UNPFII, 2004). According to the International Fund on Agricultural Development "Indigenous peoples constitute an important group of rural poor. According to available estimates, worldwide there are about 300 million indigenous peoples living in more than 70 countries, and the majority of them are poor" (IFAD, 2003, p. 5). Thus in order to reach the MDG of eradicating extreme poverty it is imperative that the lives of the indigenous populations are improved and the most successful way of achieving this improvement is through the continued engagement, integration and utilization of indigenous knowledge. As indigenous people comprise a large percent of the population suffering from extreme

poverty, indigenous knowledge systems should be used to improve the mal-development that has contributed to their extreme poverty.

In terms of economic growth as a means of eradicating extreme poverty, the knowledge and insight held by indigenous people in sub-Saharan Africa is a useful, and frequently neglected, resource for economic development. The International Fund for Agricultural Development stated that "despite their often marginal soils, the territories inhabited by indigenous peoples frequently have great opportunities for economic development as sources of water, power, biological diversity, minerals and local resources not found elsewhere" (IFAD, 2003, p. 15). A locally available natural resource that has been used to increase economic development and decrease instances of extreme poverty and hunger in East Africa is honey. While indigenous populations have always harvested honey, the possibilities of utilizing honey production as an economic resource has previously been hampered by lack of access to both local and international markets and the availability of modern technologies for honey collection and processing.

An innovative project linking indigenous populations with wider market options and more modern processing facilities has begun operating in Kenya and Tanzania. Honey Care Africa is an example of an organization developed to provide a link between indigenous Kenyan and Tanzanian communities and both East African and international markets. Honey Care Africa works with rural and indigenous beekeepers to produce uniquely flavored organic honey - a specialized sustainable, local product. Once the honey has been harvested, Honey Care Africa ensures higher economic returns on the product by selling the honey in a larger market than that to which the independent bee-keepers would have access. This provides sustainable income generation opportunities

for indigenous populations in both Tanzania and Kenya, allowing individuals and communities to reduce poverty and promote biodiversity conservation in their areas. Many beekeepers "are able to earn US$200-250 per year - an amount that is often enough to make the difference between living above or below the poverty line" (http://www.honeycareafrica.com/). By providing a means and a market for indigenous and local beekeepers to sell their honey, Honey Care Africa represents a positive way economic growth can be achieved utilizing local resources and local knowledge in an environmentally sustainable way thus contributing the achievement of the first MDG.

In addition to resource-based economic wealth available to indigenous populations, areas inhabited by indigenous peoples in sub-Saharan Africa are often prime locations for the development of sustainable eco-tourism undertakings. "The territories inhabited by indigenous peoples are often located in the world's most pristine natural settings, which are eminently suitable for ecotourism" (IFAD, 2003, p. 15). Il Ngwesi Lodge on Kenya's Laikipia Plateau, is an example of an eco-tourism model designed and developed with the engagement of local indigenous people. The lodge, managed by the local Maasai community, has been used to substantially reduce poverty and alleviating hunger in the community while conserving biodiversity for future generations. By investing the income from the lodge back into the community "Il Ngwesi Lodge has paid for many social developments, such as the provision of school bursaries and the construction of a primary school and three nursery schools. Funds have also been directed into water maintenance and health schemes" (http://www.lewa.org/ilngwesi.php). This is a positive example of how, by supporting development that engages and encourages indigenous communities in sub-Saharan Africa, the economic benefits from the natural

resources become available to indigenous populations and lower instances of extreme poverty within the community.

Goal 2: Achieve universal primary education

The second MDG calls for the achievement of universal primary education. The indicators of progress for this goal is the target of ensuring that, by 2015, all children, both male and female, will be able to complete a full course of primary school. Universal primary education is measured through two indicators: primary school enrollment (how many children are enrolled in primary school) and survival rate to grade five (how many children enrolled in grade one eventually reach grade five). Survival rates to grade five are of particular interest as "four years of primary schooling are commonly considered a prerequisite to sustainable literacy" (UNSTAT, 2005). Currently, sub-Saharan African lags behind the rest of the world with minimal progress towards the achievement of this MDG with only a 62.2 percent primary school enrollment and a 52.8 percent survival rate for primary schooling. There are no indicators for either primary enrollment or survival rates specifically for indigenous populations but as indigenous populations are consistently the most marginalized people it can be expected that access and availability of primary education is at least as dismal with indigenous populations as in the general populace.

There are examples indicating that the specific needs of indigenous populations have been considered, and a subsequent increase in enrollment and survival rates are reflective of the benefits of this consideration. In Namibia the importance of primary, free education has been a priority for some time and while in a recent progress report on the status of the MDGs, Namibia was able to predict the achievement of the goal of

universal primary education, Namibia has identified "that regional disparities exist and they exist in regions where indigenous groups are primarily located" (Laird, 2006, p. 33). The report stated the need for "increasing efforts towards marginalized groups including the San and Ovahimba, both indigenous peoples. It also mentions that priorities for future development assistance in this area should target non-formal education mobile schools for vulnerable groups, including indigenous peoples" (Laird, 2006, p. 33). That the Namibian government recognized the need for greater assistance in the area of indigenous educational engagement is encouraging and the willingness to consider alternative methods of education to allow greater accessibility and to meet the needs of the indigenous Namibian communities is a positive step.

Another country that provides an example of positive progress towards universal primary education, particularly for marginalized indigenous groups, is Uganda. In the progress report written to describe Uganda's progress towards achieving the MDGs it is written that Uganda "is in line to meet the targeted goals by 2015. Low retention rates are a problem however, especially in remote areas, and here the report mentions tailoring schooling for children from regions of Karamoja (an indigenous tribe) whose families are mainly nomadic for days at a time. Thus the Ugandan Government is paying attention to the specific needs of some indigenous children when designing interventions" (Laird, 2006, p. 49). Namibia and Uganda represent positive steps made towards the inclusion of indigenous populations in the primary education systems in sub-Saharan Africa.

In other regions of sub-Saharan Africa the goal of universal primary education is far from being reached. Issues of relevancy, access, retention, and appropriateness are present for all students in sub-Saharan Africa and are particularly pertinent for indigenous

populations. One way of ensuring indigenous people have access to relevant education is to engage indigenous people in the educational process. By ensuring that indigenous people become active, participating contributors in development it is possible to obtain equal access to educational resources for indigenous peoples. "Without basic education, individuals are limited to marginal existence in rapidly changing technological societies, and have no hope of developing their understanding of the human condition, discovering their talents, and enhancing their ability to create wealth" (Semali, 1994, p. 3).

Indigenous people are often excluded from education resources as a result of their different language and customs from the majority, their habitation in remote locations, and their nomadic lifestyle. Access and retention was and continues to be problematic for indigenous populations, particularly those who are nomadic or live in remote rural areas which require students to either board at school (an expensive and emotionally difficult option for primary school students) or to attend only occasionally.

Another issue regarding indigenous engagement with primary education is relevancy. As Ngugi wa Thiong'o stated "the language of an African child's formal knowledge was foreign. The language of the books he read was foreign. The language of his conceptualization was foreign. Thought, in him, took the visible form of a foreign language" (wa Thiong'o, 1986, p. 17). Abdi comments further that "Indigenizing African education does not necessarily aim for bodies of knowledge or unique epistemologies that are entirely African, but minimally ones that selectively create and sustain experiences of schooling that fit the "texture" as well as the qualitative realities that represent the consciousness and practical life management clusters of contemporary *vita Africana"* (Abdi, 2005, p. 25). By indigenizing the curriculum, education can be used to empower

local communities and graduates will have places to apply their understanding and acquired knowledge in a meaningful, productive way. In addition, by including the community in the educational developmental process, it allows the inclusion of local understanding while giving equal recognition to other, non-academic knowledge.

Goal 3: Promote gender equality and empower women

The third MDG centers on the rights of women by the promotion of gender equality and the empowerment of women as a basic human right as proclaimed by the Universal Declaration of Human Rights. The progress towards this goal is assessed by measuring gender equality in three areas: education, employment and political decision-making. The myriad of other issues impeding women's empowerment (including violence, reproductive power, and property rights) have not been addressed at this time. The narrowly defined indicators for this goal are the eradication of gender disparity in primary and secondary education preferably by 2005, and at all levels by 2015. This goal is of importance not just by itself as a means of providing equality to all people but also because, as stated in the declaration on the MDGs of the United Nations, "throughout the world, women play a critical role in national economic growth and development. Their contributions have a lasting impact on households and communities, and it is women who most directly influence family nutrition and the health and education of their children" (UNSTAT, 2005). The promotion of women's rights through gender equality and empowerment will be of benefit in the achievement of all the MDGs. If women are not empowered and equality of access to economic, education, health and political resources is not provided, all the MDGs are doomed to failure to failure, not only Goal 3.

According to the United Nations Statistics Division (2005), in 2001, in sub-Saharan Africa, there were 86 girls enrolled in primary school for every 100 boys enrolled and of the 10 countries with the lowest female enrollment rates in the world, 9 of them were in sub-Saharan Africa. The United Nations has cautioned that it is unlikely that Goal 3 will be met if current levels of progress continue. As stated in the MDGs report on progress between 1990 and 2005, "if this slow rate of progress continues in these regions, the target of eliminating the gender gap in secondary education by 2015 will be missed. A number of countries, the majority in sub-Saharan Africa, lag far behind, with girls' to boys' ratios as low as 46 in Benin" (UNSTAT, 2005). There are no indicators for indigenous populations but "as indigenous women tend to experience triple discrimination (poor, female and indigenous), it is critical that they play a central role in decision-making processes as well as in the design, planning, implementation and evaluation of relevant programs and projects" (UNDP, 2001, p. 12). The intimate, local, and appropriate knowledge indigenous women possess about a wide range of topics can be a positive force in combating a range of social, economic and healthcare shortcomings if indigenous women are empowered and their knowledge is valued and incorporated.

There are examples of positive empowerment of women and instances of gender equality being accomplished by utilizing the expertise and experience of indigenous women in sub-Saharan Africa. For example, in Senegal, indigenous women initiated a campaign to eliminate the high rate of female genital mutilation (FGM) in that country. International development organizations had attempted to end the tradition of FGM in Senegal for decades but the elimination proved impossible to accomplish, until a group of indigenous women from a village called Malicounda addressed the issue using their

indigenous knowledge and worldview. The women convinced the village council, the religious leaders, and, most importantly, the women in their village to abolish the practice of FGM and even created teams that traveled to other villages to promote the abolishment of FGM. "In less than three years, this grassroots movement had spread to more than 200 communities nationwide and several communities in other countries as well" (Ramphele, 2004, p. 14). The Senegalese example illustrates the impact that utilizing indigenous knowledge can have on development in instances where other development practices were unsuccessful. This is because "women are key transmitters of traditional knowledge and values, and they are significant participants in the development process" (Davis & Ebbe, 1993, p. 5) and therefore without the inclusion of indigenous women's voices, world views and insight, sustainable development will be minimal.

Goals 4, 5 & 6 – A Focus on Health Issues

Sub-Saharan Africa is in a health care crisis in terms of illness prevention, the treatment of disease and access to medical care. The current health budgets in Africa tend to focus on finding a solution based on Western, biomedical methodology, which has failed to relieve the African people of their health burden. Despite expenditures on large, modern health facilities and advanced curative technologies, instances of child mortality, maternal mortality, and the spread of HIV/AIDS, malaria and other diseases continue to rise above all other regions on earth.

A major impediment to sustainable, effective health care in Africa is the lack of collaboration between Westernized, biomedical, science-based knowledge and traditional, indigenous forms of healing. It is clear that the solution to what the World Health Organization calls Africa's deplorable health crisis will not be found from a sole

reliance on the technologies developed in the industrialized countries of the world. "Modern health care has never been, and probably never will be, adequate and equitably provided anywhere in Africa, due to financial limitations related to rapid population growth, political instability and poor economic performance, to name a few" (Aregbeyen, 1996, p. 16). The health care systems in Africa need to incorporate indigenous knowledges into the public health care sphere. Both forms of knowledge (traditional and biomedical) have something to offer and by combining the best and most appropriate parts of each, a knowledge system can be developed that will aid in the rejuvenation and reclamation of African health care.

Prior to colonialism, sub-Saharan Africa had an extensive traditional system of health care that combined a comprehensive understanding of herb and plant medicinal properties with spiritual, environmental and societal healing. Health care was easily accessible, affordable and its efficacy was strongly accepted in the community. Currently, sub-Saharan African people are at a risk of losing much of their indigenous knowledge related to health care while they are still unable to access the expensive, advanced, and probably, less appropriate, forms of health care offered by Westernized medicine.

There are particular areas where traditional, indigenous medicine is a more effective and appropriate solution than Westernized, bio-medical knowledge and where the incorporation of indigenous knowledges can lighten the overwhelming burden placed on the modern health care systems in sub-Saharan Africa. The current systems is crippled in its effectiveness by several factors and of those factors areas where collaboration with indigenous knowledge can be utilized are in the areas of disease and

illness prevention, accessibility to alternative, traditional forms of primary health care, and cost-effectiveness health care solutions.

A paradigm shift from prevention to treatment occurred in the industrialized world with the introduction of pharmacology and advancements in biomechanical assessment and testing. As a result, prevention was not seen as important to a health care system as treatment. However, as African governments struggle with rising costs of health care and greatly reduced resources, prevention becomes one of the most important steps in creating an effective medical system in sub-Saharan Africa. Public health education is an inexpensive way to minimize the health system's dependencies on expensive treatments and costly equipment. As Aregbeyen stated "by introducing health education, they [African governments] should endeavour to inculcate in both young and old with an understanding of how to keep healthy" (1996, p. 16). Indigenous methods of public education are very effective and can be utilized to help lower occurrences of disease and illness.

Accessibility to effective health care is another major problem in providing solutions for sub-Saharan Africa. Modern medical equipment is neither transportable, numerous nor easily operated and as such its use is very unsuitable in remote or rural areas. As the majority of people in many sub-Saharan countries still live in rural communities and remote areas, this is unacceptable. In present-day Africa, the majority of the people lack access to modern health care, and where it is available, the quality is often below acceptable levels (Bodeker, 2000). Since modern medicine is not capable of supporting populations in such vast distances, an alternative is used. This alternative is indigenous, traditional healing. As Aregbeyen points out "many rural communities in

Africa still have areas where traditional herbal medicine is the major and in some cases the only source of health care available"(1996, p. 16). Where modern health care is unable to assist traditional forms of healing can and should fill the gap. Traditional, indigenous healing is the first line of defense against disease and illness and if that knowledge is unable to successfully prevent, treat or cure an individual; alternative, modern treatments may be sought.

Cost effectiveness is the third aspect of public health that can benefit from the collaboration between Westernized, modern medicine and indigenous forms of prevention, and treatment. The escalating costs of modern medicine have pushed many communities to look towards indigenous medicine as an alternative. "In view of the current crisis in the provision of modern health care in most African countries, there is every reason to promote a knowledge and understanding of which type of herb is used for treating which ailment" (Aregbeyen, 1996, p. 16). In fact, in many areas of sub-Saharan Africa the high cost of treatment is the major contributing factor for the recognition of indigenous forms of healthcare.

Indigenous people around the world consistently rank among the lowest in almost every health indicator (Stephens, Porter, Nettleton & Willis, 2006, p. 2019) and the indigenous populations in sub-Saharan Africa generally rank lowest of all. There are three MDGs directly focusing on issues of health and disease treatment and prevention. There are common reasons why indigenous populations rank so low in all three identified health goals. Access to medical facilities, loss of traditional knowledge, discrimination of indigenous populations by medical professionals, cost and availability of medicine and treatment, preventative education available to indigenous people, socio-economic issues

relating to extreme poverty and displacement, environmental contamination, and socio-cultural marginalization all combine with indigenous disempowerment to make the medical realities of indigenous people dismal.

It is necessary to address the particular needs of indigenous populations and examine the underlying causes of poor health in indigenous communities if improvements are to be made. Indigenous voices must be included in the discussions and must have input in all aspects of decision-making. Additionally, the importance and significance of indigenous medical knowledge must be recognized as a valuable partner to modern medicine. The following recommendations were part of a document provided by the office of the Secretary-General of the United Nations and directed at governments, United Nations organizations and all other development organizations, when addressing the health needs of indigenous populations:

1. Access to comprehensive, community-based and culturally appropriate health care services, health education, adequate nutrition and housing should be ensured without discrimination.
2. Regional and local consultations with indigenous peoples be undertaken in order to appropriately integrate indigenous healers, indigenous concepts and understandings of health, wellness, healing, illness, disease, sexuality and birthing as well as traditional health systems into policies, guidelines, programmes and projects.

3. National monitoring mechanisms for indigenous communities to report abuses and neglect of the health system to national health authorities should be set up and the legal framework to effectively address these issues be put in place. (United Nations General Assembly, 2005, p. 14)

While these recommendations provide key direction in how to improve indigenous health in sub-Saharan Africa, it is clear that additional practices must be implemented.

Traditional medicine is an untapped resource in the fight for better health outcomes for both indigenous and non-indigenous people around the world. Bodeker stated that, according to the World Health Organization (WHO), an "estimated 80 percent of the world's population, about four billion people, rely upon traditional medicine for their primary health care" (2000, p. 16) and that "when we look at traditional health care systems, we are seeing systems that are effective, that are locally available, that are affordable, and that are sustainable" (Bodeker, 2000, p. 17). The following sections will give detailed examples of how indigenous knowledge and traditional medicine has been utilized successfully to improve the health of indigenous populations through reduced child mortality, improved maternal health and the fight against HIV/AIDS, malaria and other diseases.

Goal 4 : Reduce child mortality

The fourth MDG calls for a reduction in child mortality. Progress for this goal is measured against the objective of reducing by two-thirds, between 1990 and 2015, the

mortality rate of children less than five years of age. There is an additional indicator that looks at the incidence of vaccination in children between the ages of 12 and 24 months, particularly for measles, which is the leading cause of death from vaccine preventable diseases. At this point there is very little chance that this goal will be achieved. At 172 deaths per 1000 births, sub-Saharan Africa has a rate of child mortality more than double that of the world average and if the rate of child mortality in sub-Saharan Africa is compared to developed countries, sub-Saharan Africa's rate of child mortality is 25 times higher (UNSTAT, 2005). While the picture painted is grim for populations in sub-Saharan Africa, it is even bleaker for indigenous populations. There is limited data available on indigenous population in sub-Saharan Africa but some numbers indicate child mortality rates five times higher the regional average (Ohenjo et al., 2006, p. 1939). Rates of child mortality in indigenous communities are far above the MDG indicators and will only be reduced by incorporating indigenous knowledge and voice into the solution.

There are many ways child mortality can be addressed and many of these interventions rely on modern technologies and medical knowledge. Modern medicine has an integral part to play in the achievement of the fourth MDG. By acknowledging the need for modern medical technologies and expertise it should not follow that indigenous knowledge and indigenous populations do not have a role to play in the development of strategies to improve health conditions and lower child mortality. Rather, the engagement of indigenous people in providing preventions strategies, the dissemination of health related information, care for the ill, and, most importantly, locally available, cost effective traditional medicine is imperative and necessary.

An example that outlines the positive impact indigenous knowledge can have on improving health and lowering child mortality comes from a project implemented in Mali and Senegal that incorporated indigenous grandmothers. The objective of the project was to employ grandmothers in indigenous communities to build on their extensive traditional knowledge and augment that knowledge with information about selected contemporary practices. The project was specifically aimed at neonatal care, and maternal and child health through nutrition. The project was successful both as a means to improve grandmother's care of infants and young children but also because young women began to re-value the indigenous knowledge provided by grandmothers and heed the advice offered by those grandmothers. The positive outcomes are briefly described:

> There were improvements in all indicators related to grandmothers' advice to younger women and to their own practices with young children.
>
> ...
>
> In addition, the final evaluation showed that changes in younger women's practices were greater in communities where nutrition education activities were carried out with grandmothers as compared to places where only younger women participated in these activities, providing additional evidence of the influence of grandmothers' advice on younger women's practices. (Aubel, 2006, p. 3)

The results of this project indicate that significant change can be achieved if indigenous populations are involved in deciding if and how to combine modern knowledge with traditional knowledge.

Goal 5: Improve maternal health

The fifth MDG calls for the improvement of maternal health. According to the United Nations Department of Economic and Social Affairs "complications during pregnancy and childbirth are a leading cause of death and disability among women of reproductive age in developing countries" (UNSTAT). The indicator of progress for this goal is the reduction by three quarters the instances of maternal mortality between 1990 and 2015. The MDG for child mortality is closely linked with this goal. The correlation between infant health and maternal health in inexorably linked, particularly during pregnancy and the first several months of a child's life. Currently, in sub-Saharan Africa the lifetime risk of maternal death is one in sixteen with 920 maternal deaths per 100 000 live births (UNSTAT, 2005). Maternal rates of mortality with indigenous women are thought to be significantly higher as indigenous populations rarely have effective access to medical treatment, may be discriminated against by medical professional, may not have the means to procure medical services and often lack modern information regarding ante-natal and post-natal care.

One of the major factors influencing maternal mortality is whether there is a skilled practitioner present to help the mother deliver her baby. Often, with indigenous women, particularly those who live in remote areas far from hospitals and clinics, a traditional birth attendant is the best available resource for a pregnant woman. A traditional birth attendant may have no formalized medical training but has extensive knowledge of indigenous practices that are handed down through generations. In both Uganda and Mali, it was recognized that, since traditional birth attendants were the only skilled health worker present at the majority of births in rural or remote areas, it made

sense to provide additional training to the traditional birth attendants in order to utilize indigenous knowledge and practices to improve maternal mortality. Traditional birth attendants often know the pregnant woman, know the conditions in which the pregnant woman lives, and can provide ante-natal care prior to delivery.

In Uganda, a project called Save the Mothers, was instigated to reduce maternal and newborn mortality by increasing the availability, access and utilization of essential obstetrical care for women. The project recognized that the majority of rural women preferred to be attended during labor by a traditional birth attendant and in many cases a traditional birth attendant was the only possible resource. In order to ensure effective maternal care education and information initiatives were put in place to inform traditional birth attendants, community leaders and district officials of the basic principles related to the Save the Mothers Project objectives; a resolution for the conflict between traditional birth attendants and midwives was implemented; the acceptance of traditional birth attendants at district maternity units was encouraged; and monthly rounds at the district maternity units included visits to traditional birth attendants to provide information and answer questions about the project's interventions (http://www.sogc.org/iwhp/initiatives-intervention-uganda_e.asp). The Save the Mothers project resulted in a significant reduction of maternal deaths in Kiboga district in Uganda thus the indigenous, traditional medical practices were combined with modern medical knowledge to decrease the instances of maternal mortality.

Another positive indicator of maternal health is the presence of antenatal care during pregnancy and post-natal care following the birth. Another excellent example of how traditional medicine combined with modern medicine has provided very positive

results occurs among the Igbo peoples of Nigeria. It was found that a healthy delivery was only a part of maternal health and that after the delivery, at a time when there was great risk of infant and maternal mortality there needed to be an intervention to ensure maternal mortality did not rise. By utilizing a traditional period of post-partum healing called Omugwo, the Igbo people ensured that the physical health of the child and mother were protected and also that the community could become involved in the development of the child and the healing of the mother. Some salient features of an Omugwo postpartum rite include a special, highly nutritious diet to restore energy, heal wounds and promote lactation for the new mother. Also, the mother (or grandmother of the infant) cares for all aspects of the household including care for the new mother and infant during the period of Omugwo (Obikeze, 1997). This allows the transmission of knowledge about child-rearing and household maintenance from mother to daughter and provides a valuable role for the grandmother. Lastly, medicinal oils and baths are prepared for the new mother and the infant that aid in the healing of the umbilical cord and the return of strong abdominal muscles and prevent infection. This example perfectly shows how traditional forms of health care contribute to healing across a much wider spectrum than just the physical health of the mother and child.

Goal 6: Combat HIV/AIDS, malaria and other diseases

The sixth MDG calls for stopping and reversing the spread of HIV/AIDS, malaria and other major diseases. Not unexpectedly, the main prevalence of these diseases is in poorer regions of the world. There are two targets associated with this goal. They are to have halted by 2015 and begun to reverse the spread of HIV/AIDS, and to have halted by 2015 and begun to reverse the incidence of malaria and other major diseases. By halting

and reversing the spread of HIV/AIDS, malaria and other diseases it is possible that significant gains can be achieved with regards to all the MDGs. Improved health in the sub-Saharan region will increase economic sustenance, primary education, gender empowerment, child and maternal health, care of the environment and even a development partnerships around the world. It is important to note that each of the diseases indicated in this goal can be prevented, managed, or cured through preventative education and access to traditional and modern medicine. Since the majority of indigenous people in sub-Saharan Africa do not have reliable access to modern medicine, the utilization of indigenous solutions becomes of vital to the prevention of disease, the treatment of sick individuals, and prolonged life through disease management and care.

In sub-Saharan Africa, the high cost and scarcity of anti-retroviral drugs has led the majority of people living with HIV/AIDS to use traditional herbal treatments for a variety of HIV-related conditions including opportunistic infections. As Green (2004) points out "it should be recognized that it will take at least several years to work out all the problems involved in providing ARVs (anti-retro viral drugs) in an equitable way in Africa. Meanwhile there are low-cost, home-based care and support programs already operating in Africa" (p. 21). In many countries in sub-Saharan Africa, indigenous solutions have been developed that promote collaboration between traditional healers and modern medical practitioners in the prevention and treatment of HIV/AIDS. An indigenous NGO in Tanzania, the Tanga AIDS Working Group (TAWG), is an excellent example of indigenous healthcare solution. The organization utilizes the 670 already present traditional healers to provide herbal remedies to patients suffering from HIV/AIDS and the variety of opportunistic infections associated with the disease. The

traditional healers visited homes of patients and provided indigenous treatments. The results of this program are as follows:

> TAWG's medicines increase appetite, help patients gain weight, stop diarrhea, reduce fever, clear up oral thrush, resolve skin rashes and fungal infections, treat herpes zoster, and clear ulcers. Treating patients extends their longevity, improves the quality of their lives, and reduces the number of orphans since parents remain alive. (Scheinman, 2002, p. 3)

Clearly, in the absence of anti-retro viral drugs, indigenous solutions like those provided by TAWG are both necessary and increasingly important as the incidence of HIV/AIDS rises and the impacts of HIV/AIDS are felt around the region.

It is not being suggested that indigenous, traditional forms of healing are meant to supplant more modern, scientific-based medicine but rather that there are exceptional opportunities to make the most of both systems where their particular strengths are most applicable. Often traditional treatments are the first attempt at healing and if these types of healing fail, the less accessible, more expensive bio-medical specialists, doctors and nurses may be consulted. This, of course, works in the opposite direction as well as "almost half of the population of many industrialized countries now use alternative or complementary approaches to health care…that are outside of mainstream biomedicine" (Bodeker, 2000). The combination of bio-modern medicine with traditional medicine will enable the health systems in sub-Saharan Africa to become more effective and less expensive as the expensive modern medical treatments can be utilized only if more accessible medical care does not result in a satisfactory outcome.

Traditional medicine does not only hold positive prospects for patients with HIV/AIDS but also as a method for treating malaria. While malaria does not receive the sensational media coverage accorded to HIV/AIDS, malaria claims the lives of a million people a year, mostly young children, and is estimated to have slowed economic growth in African countries by 1.3 per cent a year (UNSTAT, 2005). The treatment of malaria in sub-Saharan Africa has become particularly difficult in recent years as the spread of drug resistant forms of malaria continue to spread. However in Ghana, Kenya and Nigeria, there is research being conducted, utilizing WHO protocols, on the efficacy of traditional medical methods of malarial treatment. "Preliminary research results of pilot-scale clinical trials, which are quite promising, were evaluated in March 2002 during the WHO Review Meeting of anti-malarial herbal medicines" (WHO/AFRO, 2003). Another example of traditional medicine proving to be useful in the achievement of the sixth MDG, comes from the Chinese herbal remedy Artemisia annua, which has been used in China for the prevention of malaria, and which could provide a new treatment for chloroquine resistant strains in sub-Saharan Africa. As the profile of traditional medicine continues to grow and as the recognition of indigenous knowledge in the fight against diseases like HIV/AIDS and malaria increases it can be expected that the achievement of Goal 6 will become more of a possibility.

Goal 7: Ensure environmental sustainability

The seventh MDG is to ensure environmental sustainability. The targets for this goal are to "Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources", "halve by 2015 the proportion of people without sustainable access to safe drinking water and basic

sanitation", and "By 2020 to have achieved a significant improvement in the lives of at least 100 million slum dwellers" (http://www.un.org/millenniumgoals/#). In contrast to the other MDGs, the indicators for Goal 7 do not apply particularly to the developing world but also require the developed world to attempt to reach these indicators.

In order to measure the progress towards the achievement of this goal a series of indicators have been developed for each of the three targets. To illustrate the way in which indigenous knowledge can contribute significantly to the achievement of this goal the indicators for first target will be explored. The first target, which aims to integrate sustainable development principles and reverse environmental resource loss, utilizes the following five indicators as measurement tools:

1. the sustainable management of forestry resources;
2. the preservation of biodiversity and genetic resources;
3. the efficient use of energy;
4. the "greenhouse effect", which is linked to global warming; and
5. damage to the ozone layer

There are examples of environmental projects developed and implemented by indigenous populations in sub-Saharan Africa that incorporate beneficial advances in all of these areas.

The usefulness of engaging indigenous populations in projects aimed at environmental conservation and the preservation of natural resources for future generations have often been acknowledged. The United Nations stated that "indigenous knowledge, practices and systems are often of invaluable importance to the sustainable management of the environment" (UNDP, 2001, p. 9) and the utilization of such

knowledge, practices and systems can greatly improve the success rates of sustainable environmental development throughout the sub-Saharan region. In 2002, the United Nations Development Programme launched the Equator Initiative, a program "designed to reduce poverty through the conservation and sustainable use of biodiversity in the equatorial belt by fostering, supporting and strengthening community partnerships" (http://www.undp.org/equatorinitiative/index.htm).

In 2002, the first Equator Initiative prize of US$30,000 was awarded to two predominantly indigenous community-based projects in sub-Saharan Africa. This demonstrates the recognition by international bodies of the positive outcomes possible from the employment of indigenous knowledge and the engagement of indigenous peoples in the development process, particularly in terms of environmental care. One of the Equator Initiative prize-winners was the SULEDO Forest Community in Tanzania, a largely Maasai community, who have demonstrated excellence in the management of their forest resources by returning to traditional methods of land use rotation and protection. The benefits of the SULEDO Forest model are described as follows:

> Harnessing their knowledge of the species-rich Miombo forests of Tanzania's Arusha region, the Suledo Forest Community has established an effective system of village-based forest management that meets the diverse needs of local people. After being spurred into action in 1993 by government plans for use of local forests, communities have regained control over land management and have devised a system of unique forest planning zones. As a result of these interventions, villagers have access to a greater range of forest products, including sustainable timber and

products such as fruits, nuts, mushrooms and medicines. Water supply has also been improved, sustainable tree nurseries, vegetable gardens and orchards have been introduced, and maize production has increased from 15 to 25 bags per hectare (http://www.undp.org/equatorinitiative/index.htm).

The SULEDO Forest Community has applied traditional and local solutions to the management of the forest and surrounding areas, thereby providing economic resources for the people of the area and encouraging development of a diverse range of economic activities in a sustainable manner. SULEDO Forest Community is an example of an indigenous project achieving the indicators for the first target of Goal 7. Additionally, through the sustainable management of forest resources and the re-introducion of indigenous knowledge of bio-resources, millennium development goals addressing poverty and hunger reduction, and health care have increased for the indigenous Maasai peoples in the area.

There are other effective ways of incorporating indigenous knowledge of the environment into sustainable development designs. For example, the intimate knowledge many indigenous peoples have of the flora and fauna in their areas means that there is the potential to employ "indigenous peoples as 'stewards' of national and global natural resources and biodiversity" (IFAD, 2003, p. 5). In looking at options for meeting the MDG of ensuring environmental sustainability the role of indigenous people, with their proven knowledge of the areas they inhabit, is invaluable.

Goal 8: Develop a global partnership for development

The eighth and final MDG calls for the creation of a global partnership for development. There are many indicators described for this goal and a discussion on indigenous knowledge engagement utilizing one of these indicators will be described in greater detail. In the sub-Saharan region, including areas with high indigenous populations, the indicators for this goal are all of high importance. However, the indicator that measures the progress towards the achievement of Goal 8 by measuring the availability of new technologies has particular relevance for indigenous populations. The measurement the number of telephone and cellular phone line subscribers, the number of personal computers and the number of Internet users are all used to indicate the progress made. The increase in access to technology is particularly relevant to indigenous populations as they often live in remote locations with limited access to information. By increasing access to communication and information technology indigenous populations can share indigenous practices and knowledge worldwide, access information about modern medicine, education, agriculture and environmental care.

Limitations of Indigenous Knowledge Engagement

As indigenous knowledge becomes an acknowledged and fundamental part of any sustainable development project, it becomes increasingly important to recognize the limitations inherent in the incorporation and engagement of indigenous knowledge. Indigenous knowledge has become more appealing for use in development as indicated by the increased number of organizations and communities accessing indigenous problem-solving solutions. However, as Eyzaguirre (2001) states "this may occur with little support for the maintenance of local cultural processes, livelihood practices,

community access and control over the natural resources that underpin indigenous knowledge". As governments and international development organizations recognize the value and worth of indigenous knowledge there is a risk of exploitation. In order to maintain the integral core values of indigenous knowledge it is essential that indigenous knowledge remains embedded in the cultures and environments that produced them.

In order to ensure the knowledge and wisdom of indigenous peoples are not exploited it is important for countries to recognize that while "indigenous peoples in general and indigenous women in particular have rich traditional knowledge systems (ecosystem management and technologies, medicinal plants, local crops) that are increasingly attracting the attention of commercial interests, they rarely get a share of the benefits" (IFAD, 2003, p. 5). To ensure the benefits of indigenous knowledge engagement are available to indigenous populations it is crucial that the protection of indigenous rights are protected.

Environmental sustainability is another key area where the engagement of indigenous knowledge in development strategies may lead to negative outcomes. The unique features of the marginal areas inhabited by indigenous peoples – limited accessibility, fragility and diversity – generally require diversification of resource use and production. The failure to recognize this fact when implementing projects based on land utilization has led to "over-extraction of timber, minerals and herbs, with, inevitably, a negative environmental impact" (IFAD, 2003, p.15).

Unfortunately, in the past, eco-tourism ventures have been developed with little or no cooperation from indigenous populations and have often served to marginalize vulnerable indigenous groups further by displacing populations and destroying the

territories indigenous people depend on for survival. It is particularly true in many areas of southern and eastern Africa that indigenous people have been displaced and marginalized further as a result of tourism activities in their traditional homes.

Finally, with collaboration between traditional health care and the modernized, bio- medicine there are concerns about the comodification of indigenous knowledge and access to modern medical resources. As the indigenous knowledge about local plants and minerals becomes better documented there is concern about the comodification of indigenous knowledge. A primary reason for the effectiveness of indigenous treatments is that they are inclusive (available to all members of a community), they are inexpensive, and they are effective as a part of a larger indigenous, holistic platform. These things are easily lost by the comodification and patenting /ownership of various knowledges.

Access to westernized biomedicines is another concern associated with increased reliance on traditional medicine. While it has been determined that indigenous knowledges play a role in providing healthcare to sub-Saharan Africa, the need for modern bio-medical care for indigenous populations is necessary and should not be limited as a response to greater reliance on traditional methods of medical care. The collaboration between indigenous and modern health care should not relieve any government of the necessity to provide modern medical care if required. Just as indigenous forms of healing have a role in a healthcare strategy, so too do modern forms of medicine need to be included in any health care strategy.

It is important to note that while the engagement of indigenous knowledge provides value, legitimacy and validity to sustainable development there are concerns about how and why indigenous knowledge is accessed. As Davis and Ebbe (1993)

comments "we have to recognize that by and large, everywhere in the world indigenous people have been victimized in the name of "progress." They have been persecuted by that which should have empowered. They have been oppressed by that which should have liberated" (p. 31). Steps need to be taken to ensure future indigenous knowledge engagement leads to empowerment and progress for indigenous populations, not co-option, comodification or subjugation.

Summary

The engagement of indigenous knowledge in the planning, implementation and evaluation of development policy and projects is of fundamental value and can contribute significantly to the achievement of all eight of the Millennium Development Goals. Through the examples of positive indigenous knowledge integration in development provided throughout this chapter it is possible to see the range of possibilities available when indigenous knowledge is appreciated and give relevancy.

Indigenous knowledge is an enormous resource for sub-Saharan Africa. It is time to harness that wealth to bring sub-Saharan Africa out of current conditions. "Many people and groups throughout Africa strongly believe that positive new development can happen, but only if the people themselves stay in control of their resources, economies, and culture." (Donnelly-Roark, 1998). If indigenous knowledge can take its place among other systems of knowledge and can be used to direct and assist in development there is an excellent chance that the problems of sub-Saharan Africa can be overcome.

Chapter 5 –Conclusions and Recommendations

Introduction

The engagement of indigenous populations in the development process in sub-Saharan Africa has begun. One can see positive examples in sub-Saharan Africa of sustainable development projects that are not only designed to benefit indigenous groups but that also recognize the enormous contribution indigenous people can make with their wisdom, perspective and intimate knowledge in the developmental process. The obvious benefits of increased incorporation of indigenous, local people and the knowledge they possess are being recognized and will increase as the sub-Saharan region looks closer at the available resources within their control in the fight for sustainable, appropriate developmental solutions.

There is a growing acceptance and recognition that indigenous knowledge and the people who possess this knowledge have an enormous role to play in the improvement of all developmental projects and policies. Key organizations involved in development, such as the United Nations and the World Bank, are instrumental in promoting and valuing indigenous knowledge engagement in sustainable development projects with the development of the Permanent Forum on Indigenous Issues, the Equator Initiative prize and IK Notes, the World Bank's publication sharing information about indigenous knowledge. Gorjestani (2004), writing on behalf of the World Bank, stated "there is considerable potential for successful indigenous practices to enhance the sustainability and impact of development efforts; and the development community should increase its support to programs that help enhance the capacity of local communities to share IK [indigenous knowledge] and apply it to get better development results". Also notable is

the increased value political figures in the sub-Saharan region are beginning to place on indigenous knowledge as exemplified by comments made by Mkapa (2004), who states that "the truth is that IK [indigenous knowledge] has all along been and continues to be the primary factor in the survival and welfare of the majority of Africans". The conventional development theory that placed indigenous people as the receivers of development rather than as leaders of development no longer hold supremacy over developmental planning, policies and projects. Indigenous knowledge is gaining deserved respect in many development sectors and as projects utilizing indigenous knowledge continue to be successful, the recognition of the importance of engagement with indigenous people and the inclusion of indigenous knowledge will grow.

While the recognition of the value of indigenous knowledge incorporation is increasing and the process of indigenous knowledge engagement has begun, it is important to recognize that significant progress still needs to be made. Countries in sub-Saharan Africa need to continue to look for developmental solutions within their own countries and regions, utilizing local resources and people, to begin to solve the problems of extreme poverty, economic stagnation, education shortfalls, gender inequality, increasing devastation from disease, sub-standard health care and environmental damage. Development organizations need to provide more substantial support for the inclusion of indigenous knowledge in development. And finally, indigenous people themselves need to empower themselves and redefine their indigenous knowledge as an integral component of all development projects with which they are involved.

Conclusions of the Study

The examples provided in this study can be used to demonstrate the benefits individuals, communities and the entire sub-Saharan region benefit from the engagement of indigenous people in the development process. It has been shown that, in answer to the guiding question posed for this study, indigenous knowledge has a large role to play in increasing instances of sustainable development in sub-Saharan Africa. Whether positive development outcomes occur in rural Tanzania in the form of environmental protection or in Mali with the reduction in maternal mortality, the instances of sustainable development directly resulting from the incorporation of indigenous knowledge into the development designs and processes is clear. Successful engagement, and the subsequent positive development results, has been repeatedly demonstrated throughout this work.

In this study, the MDGs were utilized as a framework from which to examine the benefits available with the engagement of indigenous people and indigenous knowledge in development projects. By utilizing the MDGs as a framework for this study it is possible to demonstrate the wide range of possibilities available when indigenous knowledge is incorporated. Examples provided from the fields of education, economic development, gender empowerment, health and wellness, environmental sustainability and global development have all been provided and the incorporation of indigenous knowledge in the development process has been shown to present positive contributions towards the achievement of all the MDGs. By providing examples of positive indigenous knowledge engagement in the achievement of every MDG, the potential for utilizing indigenous knowledge across all development sectors is clearly demonstrated. That all the MDGs can be achieved sooner and more sustainably with the inclusion of indigenous

knowledge in the design, implementation and evaluation of development projects throughout the sub-Saharan region is demonstrated.

Further, as confirmed by the inclusion of examples from many countries located throughout the sub-Saharan region, including Ghana, Kenya, Mali, Namibia, Nigeria, Tanzania, and Uganda, indigenous knowledge incorporation and indigenous population engagement provides promising possibilities regardless of where the indigenous knowledge originates from. It is clear that successful integration and engagement is not dependant on any particular indigenous group or on any particular development sector but rather, that on an almost universal level, indigenous knowledge provides effective strategies and solutions for the promotion of sustainable development. While indigenous knowledge is transferable to other regions it is important to note that one of the principle characteristics of indigenous knowledge is its holistic nature and when prescribing the transfer of knowledge systems from one area to another the contextuality must be respected. However, when indigenous practices, and the knowledge those practices are based on, are given adequate respect and honor there is immense possibility for positive outcomes with the transferring and sharing of indigenous knowledge.

Finally, by looking at the examples provided it becomes clear that the issues outlined in the MDGs are strongly interconnected and should not be seen as solitary indicators by themselves. The achievement of each MDG will be contingent on the achievement, or at least progress towards the achievement, of all the other goals. One cannot solve the problems inherent in the healthcare system in sub-Saharan Africa if the environment is polluted; poverty and hunger directly correlate with the ability of individuals infected with HIV/AIDS to continue to survive and support their families, an

increased access to education for girls has been shown to create increases in child health rates and reduce child mortality as mothers become more educated about nutrition, the importance of vaccinations and bed nets, and the necessity of a sanitary environment. This inter-related relationship between the eradication of extreme poverty and hunger, the achievement of universal primary education, the promote gender equality and empower women empowerment, the reduction in child mortality, the improvement in maternal health, the fight against HIV/AIDS, malaria and other diseases, the protection of the environment and the development of global partnerships is perfectly suited to solutions based on indigenous knowledge. The holistic, encompassing tendencies of indigenous knowledge and, as a generalization, the worldview of indigenous groups, provide solutions to development problems that can be seen as more conscious of the interconnectedness of development goals, and therefore more likely to be appropriate.

Recommendations

Examples provided throughout this study have repeatedly demonstrated that the integration of indigenous knowledge in development projects significantly increases the possibility of sustainable development in sub-Saharan Africa, with better developmental results and more appropriate solutions achieved. The positive impact, shown repeatedly through examples and case studies, is wide-ranging and influential in each sector of development. However, while there is growing acceptance of indigenous knowledge incorporation in development projects, and while there are examples from many countries in sub-Saharan Africa of the engagement of indigenous populations, it must be stated that indigenous knowledge is still an under-utilized and under-represented resource in development planning, strategy and participation. To increase indigenous knowledge

engagement and empowerment in the development sphere, several actions have been identified as integral and necessary.

First, there needs to be a concerted effort to continue to dismantle the knowledge hierarchy that continues to privilege westernized, scientific knowledge. The examples provided in this study should contribute to the destruction of the false supposition that an indigenous knowledge system is not equal in worth to the westernized, scientific system of knowledge. Shiva (2000) outlines this argument by stating that the positive examples of indigenous knowledge engagement "requires us to accept that one system (i.e., the Western system) need not and must not serve as the scientific benchmark for all systems, and that diverse systems need not be reduced to the language and logic of Western knowledge systems" (p. iv). By utilizing indigenous knowledge in sustainable development processes, the value and worth attributed to indigenous knowledge is increased substantially. It is of fundamental importance that indigenous knowledge receives deserved recognition of its importance and that the hierarchy of knowledge that prevailed in the development sphere that marginalized indigenous knowledge and privileged western knowledge is dismantled.

When deconstructing the current knowledge hierarchy it is important that an alternative knowledge hierarchy is not substituted. It is not my contention to suggest that indigenous knowledge should replace westernized, technological knowledge completely but rather that there are components of each system that can be complementary. As Mkapa (2004) stated "indigenous and global knowledge working together in a democratic, self-determined way is the best combination to foster sustainable development." Davis & Ebbe contribute by declaring that "the challenge is less one of

coming out on the side of one form of knowledge or another than of finding areas in which traditional knowledge and Western science can mutually support each other in the common quest for solutions to what up to now have often been intractable local and global problems" (1993). Neither westernized forms of knowledge nor indigenous knowledge maintain any monopoly on value or worth. Only by incorporating the best components of all knowledge systems available will truly sustainable development ensue.

Final Remarks

Substantial progress has been made in the recognition and utilization of indigenous knowledge. Some national governments are developing strategies to engage indigenous people, development projects are beginning to be designed with local realities and indigenous knowledge in mind, local, grassroots projects incorporating indigenous knowledge are increasing in number, and indigenous people are gaining a voice in the development processes. However, despite the positive outlook it needs to be acknowledged that there are still many challenges inherent in the incorporation and engagement of indigenous knowledge and populations in sustainable development projects. If there is any possibility of reaching the targets for the eight Millennium Development Goals by the stated deadline of 2015 every individual, community and country will need to contribute. The Millennium Development Goals will not be reached without mobilizing all available resources and one of the most integral and under-utilized resources is indigenous knowledge and the indigenous populations that hold it.

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